# MZ-E44/E45

# SERVICE MANUAL

*E Model*
*Tourist Model*

**Ver 1.0 1998.07**

Photo : MZ-E44 (SILVER)

Photo : MZ-E45 (GRAY)

US and foreign patents licensed from Dolby Laboratories Licensing Corporation

| | |
|---|---|
| Model Name Using Similar Mechanism | NEW |
| MD Mechanism Type | MT-MZE44-140 |
| Optical Pick-up Mechanism Type | ODX-1A/1B |

## SPECIFICATIONS

**MD Section**

Audio playing system
Minidisc digital audio system
Laser diode properties
Material : GaAlAs
Wavelength : λ =790nm
Emission duration : continuous
Laser output : less than 44.6 μW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7mm aperture.
Revolutions
400 rpm to 900 rpm (CLV)
Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency
44.1kHz
Coding
Adaptive Transform Acoustic Coding (ATRAC)
Modulation system
EFM (Eight to Fourteen Modulation)
Number of channels
2 stereo channels
1 monaural channel
Frequency response
20 to 20,000 Hz ± 3 dB
Wow and Flutter
Below measurable limit
Outputs
Headphones : stereo mini-jack, maximum output level 5mW+5mW, load impedance 16 ohm

**General**

Power requirements
Rechageable battery (supplied)
Nickel metal hydride rechargeable battery NH-9WM (N)
One LR6 (size AA) alkaline battery (not supplied)
Sony AC Power Adaptor AC-E15L (not supplied) connected at the DC IN 1.5V jack
Battery operation time

| Batteries | Playback |
|---|---|
| Nickel metal hydride Rechargeable battery (NH-9WM (N)) | Approx. 5.5 hours |
| One LR6 (size AA) Sony alkaline dry batteries | Approx. 8.5 hours |
| Nickel metal hydride (NH-9WM (N)) + One LR6 (size AA) | Approx. 16 hours |

Dimensions
Approx. 87 x 17.8 x 91.5 mm (w/h/d)
(3 1/2 x 23/32 x 3 5/8 in) not including projecting parts and controls
Mass
Approx. 115 g (4.1 oz.) the player only
Approx. 155 g (5.5 oz.) incl. a premastered MD and a nickel metal hydride rechargeable battery NH-9WM (N)
Supplied accessories
Battery charger (1)
Rechargeable battery (1)
Rechargeable battery carrying case (1)
Headphones with a remote control (1)
Dry battery case (1)
Handstrap (1)
Carrying pouch (1)
LR6 (size AA) alkaline battery (1) (Tourist model only)

Design and specifications are subject to change without notice.

## PORTABLE MINIDISC PLAYER

MICROFILM

SONY®

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This Mini Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

"MD WALKMAN" is a trademark of Sony Corporation.

**CAUTION**
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**Flexible Circuit Board Repairing**
- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

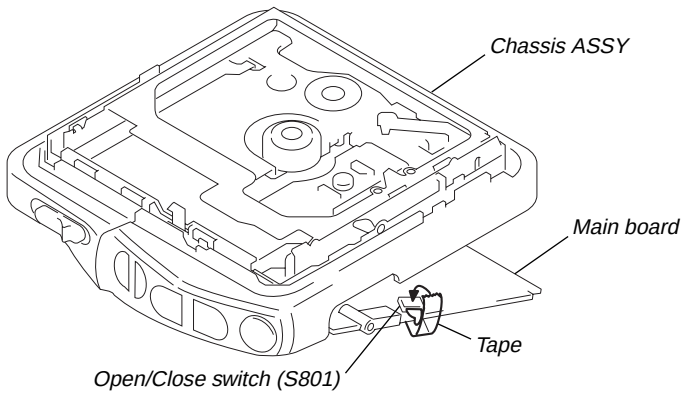
**Notes on chip component replacement**
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

# SECTION 1
# SERVICING NOTE

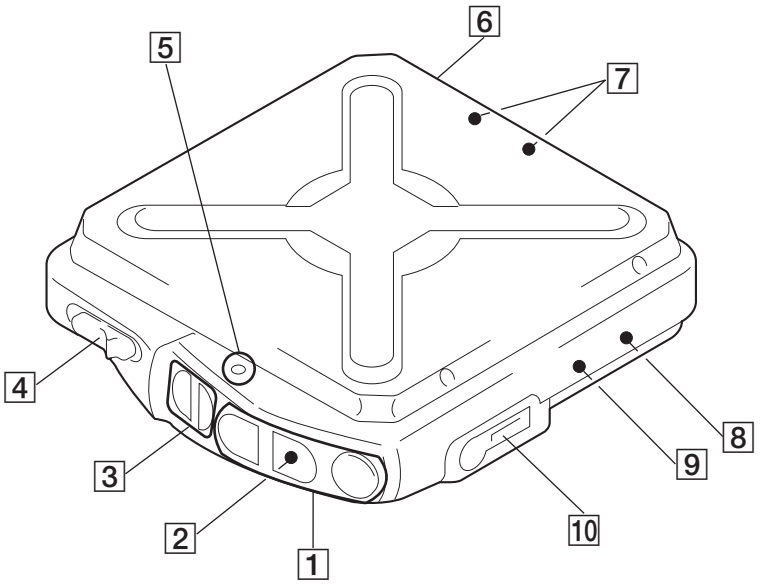
When repairing this device with the power on, if you remove the main board, this device stops working.
In this case, you work without the device stopping by fastening the hook of the Open/Close detection switch (S801) with tape.



# SECTION 2
# GENERAL

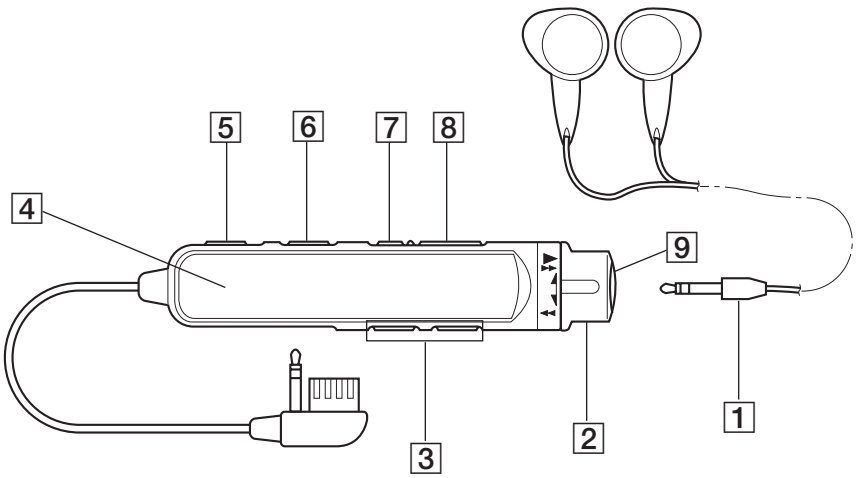
## LOCATION AND FUNCTION OF CONTROLS

### Main Unit




1 MD operate buttons
▶ • ▶▶I (PLAY • FF )
I◀◀ (REW )
■ (STOP)
2 HOLD switch
3 VOLUME +/– buttons
4 EJECT button
5 OPERA TE lamp
6 Battery compartment
7 External battery terminal (+/–)
8 DIGITAL MEGA B ASS s witc h
9 AVLS s witc h
10 🎧 / REMOTE jack

### Headphones with Remote Control




1 Headphones
2 MD operate switch and buttons
▶ • ▶▶I (PLAY • FF)
I◀◀ (REW)
■ (STOP)
3 VOL +/– button
4 Display indicator
5 DISPLA Y button
6 PLAYMODE b utton
7 ❚❚(PAUSE) b utton
8 HOLD ➡ switch
9 ■(STOP) b utton

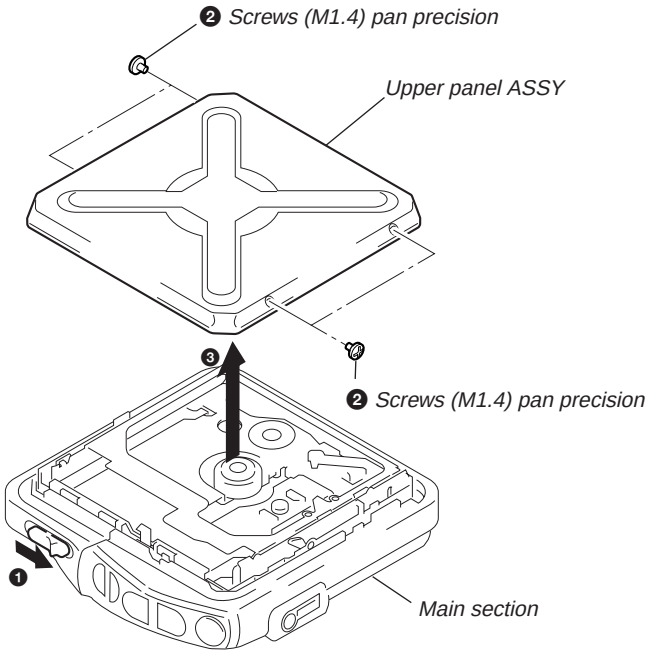
# SECTION 3
# DISASSEMBLY

● The equipment can be removed using the following procedure.

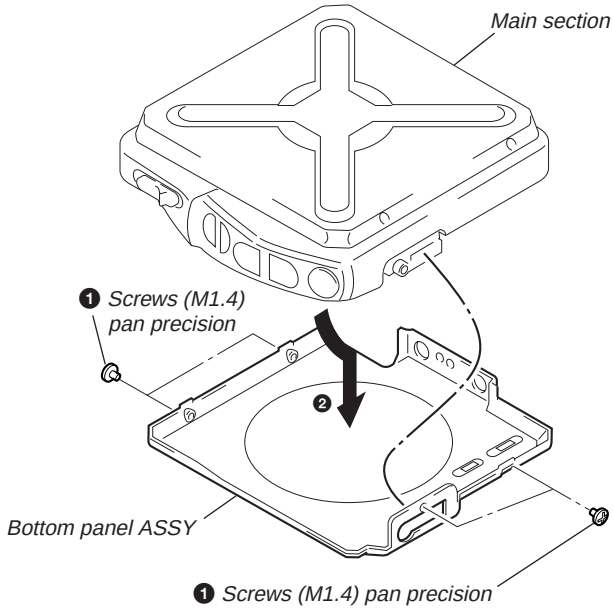
set → Upper panel ASSY / Bottom panel ASSY → Main board → Belt ASSY, Front panel ASSY → Mechanism deck section → Optical pick-up block ASSY

**Note :** Follow the disassembly procedure in the numerical order given.

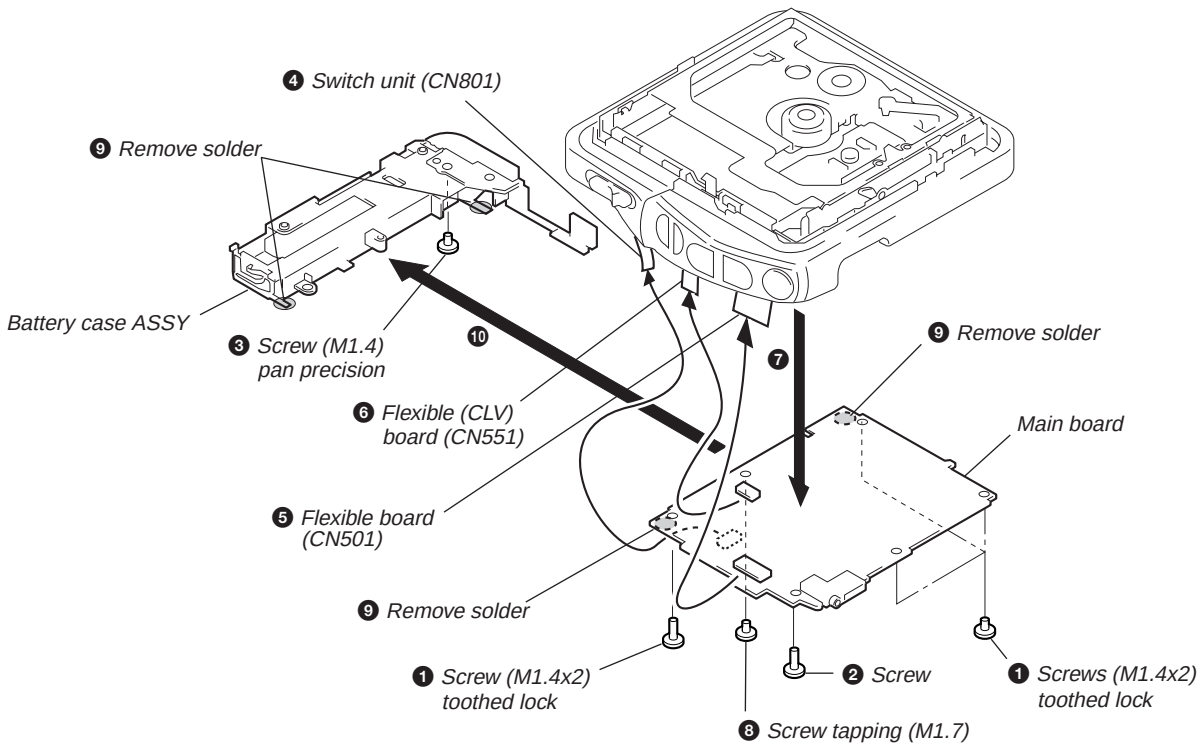
## 3-1. UPPER PANEL ASSY



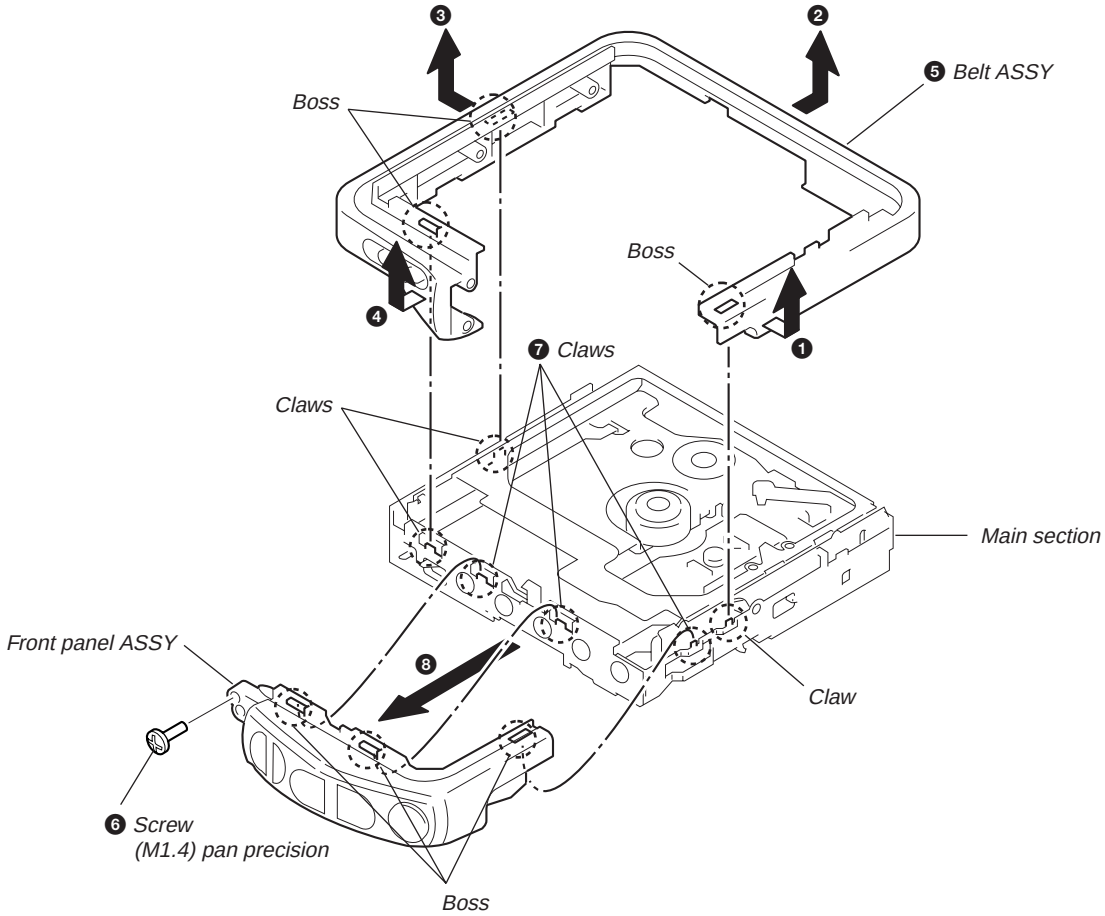

## 3-2. BOTTOM PANEL ASSY



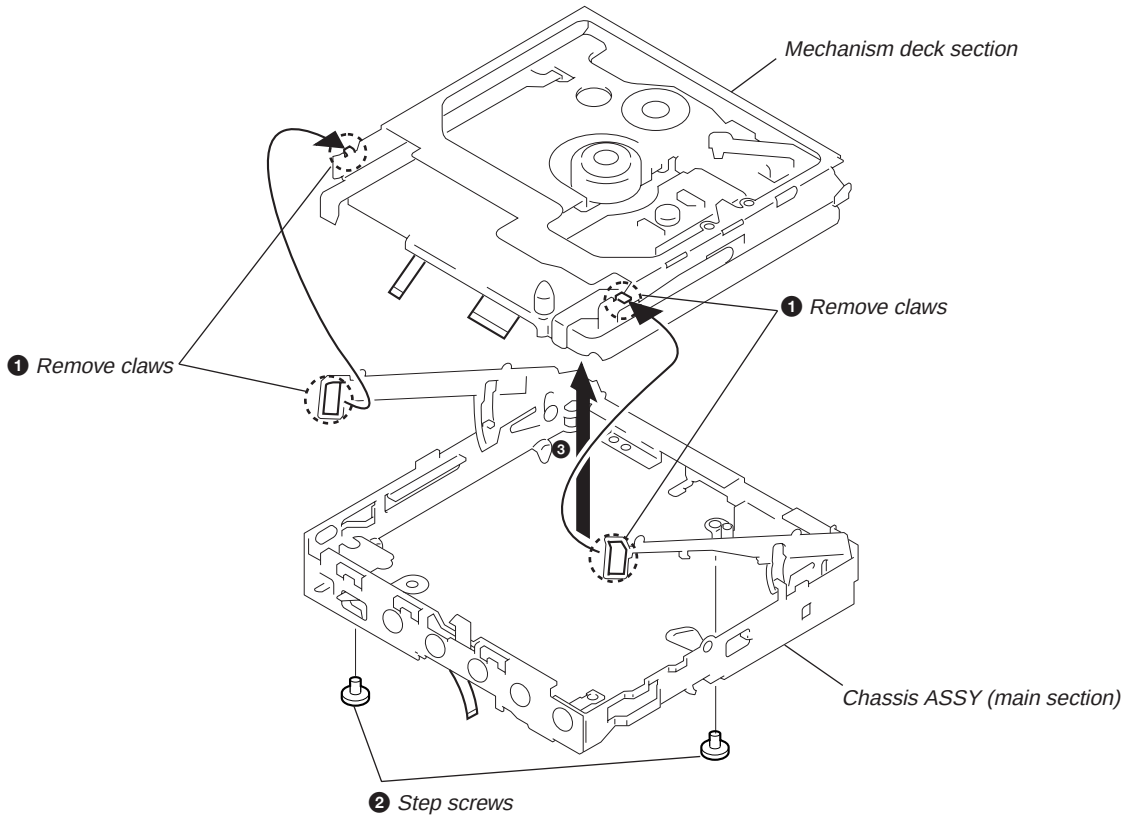

## 3-3. MAIN BOARD



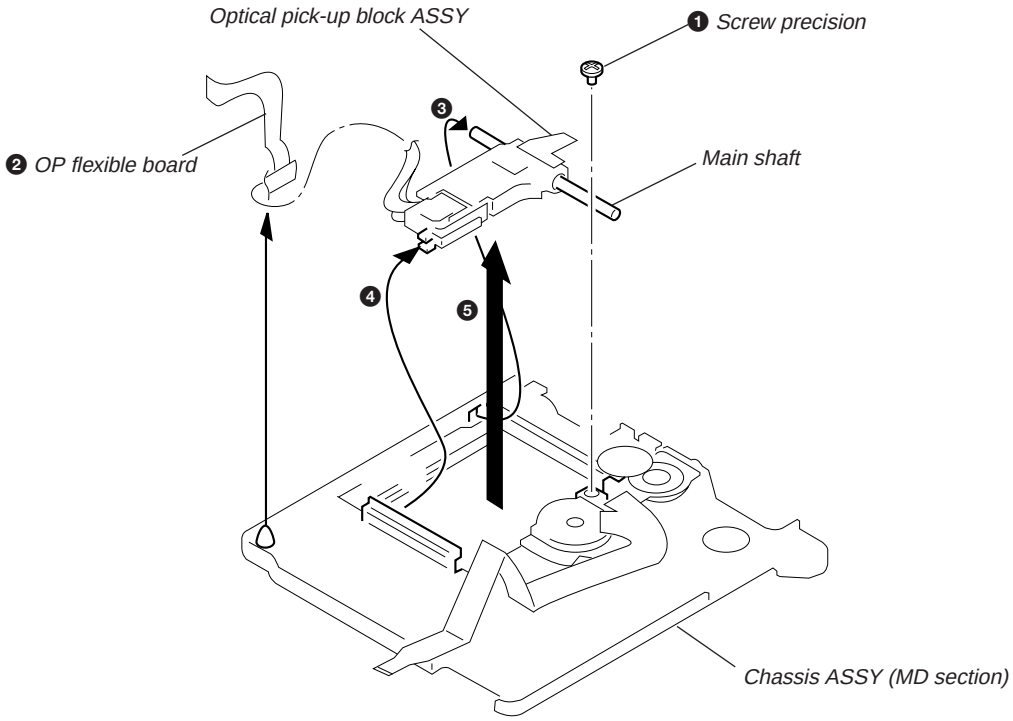
### 3-4. BELT ASSY, FRONT PANEL ASSY




### 3-5. MECHANISM DECK SECTION



## 3-6. OPTICAL PICK-UP BLOCK ASSY

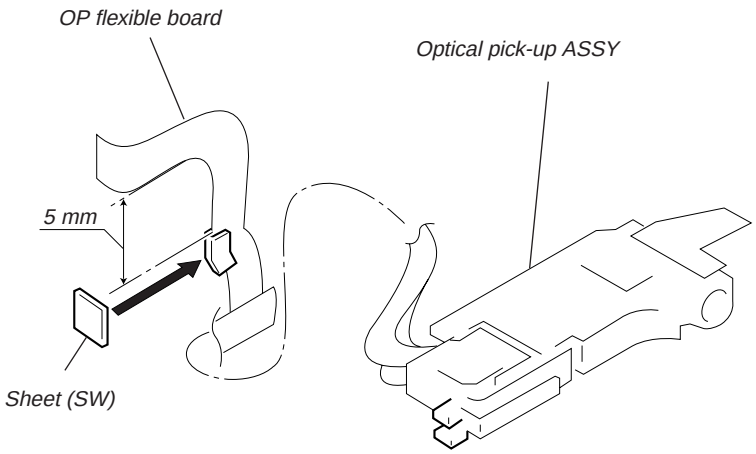



● **NOTE**

When replacing the optical block, the OP flexible board protective sheet (SW) is necessary.
Before replacing, check where the sheet (SW) is pasted onto the old OP flexible board and paste it on the new OP flexible board in the same way.

**Pasting on the sheet (SW) :**

Paste on aligning the sheet (SW) center section with the edge of the OP flexible board as in the figure and folding the excess over onto the opposite side.



# SECTION 4
# TEST MODE

### Outline

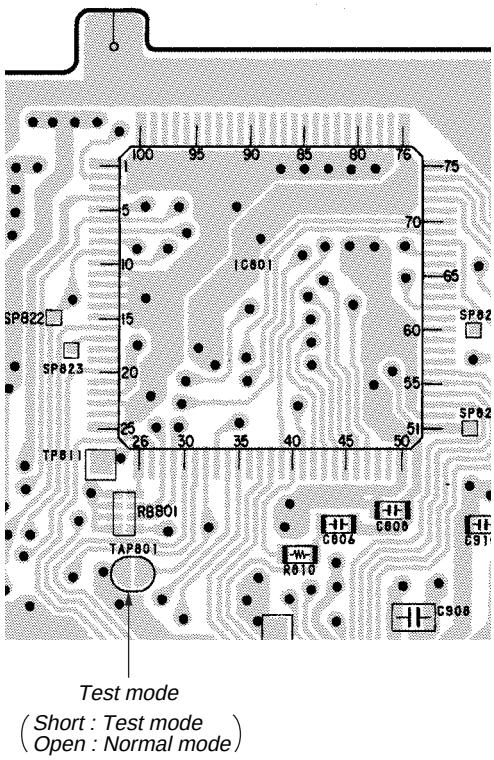
- In this set, overall adjustment mode is made available by entering test mode to perform automatic adjustment of CD and MO. In the overall adjustment mode, the disc is determined whether it is CD or MO and adjustments are performed in sequence. If a fault is found, the location of the fault is displayed. Also, in servo mode, each adjustment can be automatically made.

### Setting the Test Mode

To enter the test mode, two methods are available :

1. Entering method with key input.
   Turn on the HOLD switch on the set. While holding down the ■ key on the set, press the following remote commander keys in the following order :
   ▶▶I → ▶▶I → I◀◀ → I◀◀ → ▶▶I → I◀◀ → ▶▶I → I◀◀ → II → II
2. Entering method by shorting the test point
   Solder bridge the test point TAP801 (TEST) on the main board (connect IC801 pin ㉜ to GND), and turn on the POWER.

**[MAIN BOARD]** (Conductor side)

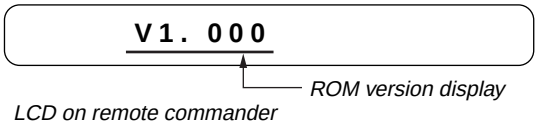



### Releasing the Test Mode

1. When test mode was entered with key input, turn off the POWER.
2. When test mode was entered by shorting the test point, turn off the POWER and open the solder bridge of TAP801 (TEST MODE) on the main board.

### Operation of Setting on Test Mode

When the test mode is set, the LCD displays the following :

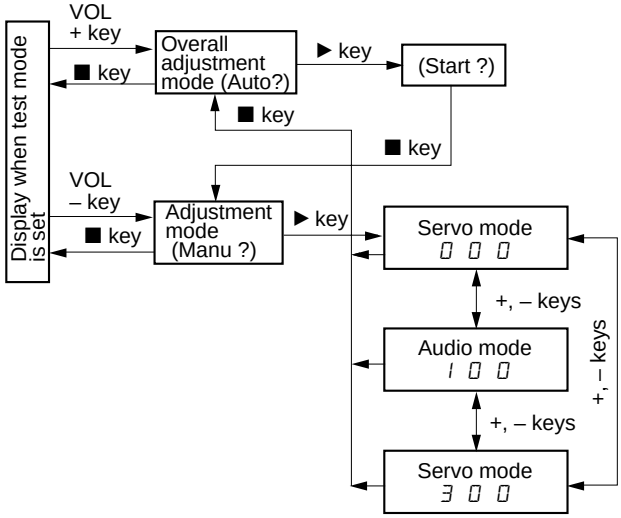



LCD on remote commander

- The cycle - the above ROM version display ⟶ All lit ⟶ All off - is repeated.
  (The ROM version is constantly displayed.)
- When the PLAY MODE key is pressed and hold down, the display at that time is held so that display can be checked.

### Configuration of Test Mode

The test mode has the configuration given below.

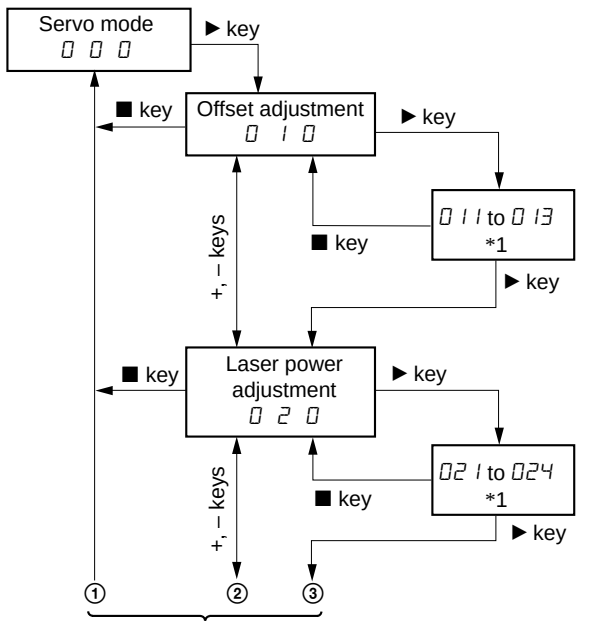



Displays of the LCD on the remote commander are shown in parentheses.

### Servo Mode

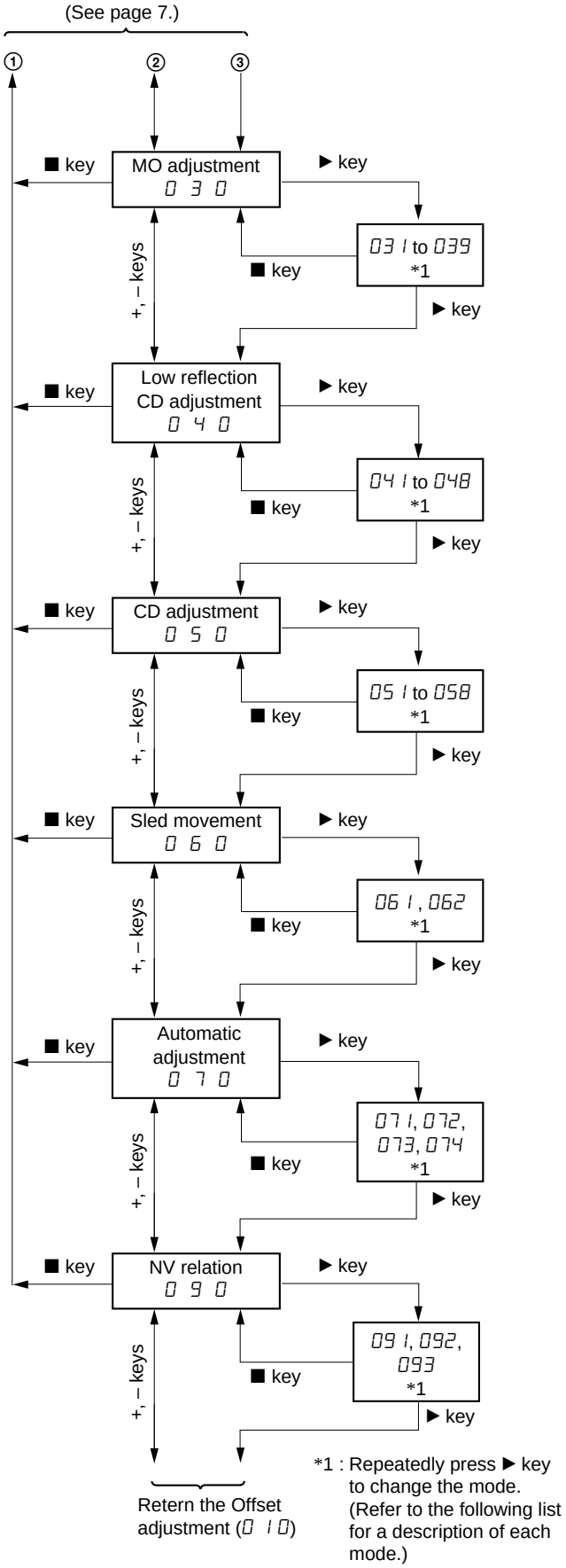
- Set the test mode, press the VOLUME – key and use the ▶ key to set the servo mode.
- When the servo mode is set, use the ▶▶I key and the I◀◀ key to move the optical pick-up to the outer circumference and to the inner circumference respectively.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Servo Mode




(See page 8)

*1 Repeatedly press ▶ key to change the mode. (Refer to the following list for a description of each mode.)




2. Description of Each Mode

0 10 Offset adjustment

| Mode | Description |
|---|---|
| 011 | FE offset |
| 012 | TE offset |
| 013 | All servo ON |

020 Laser power adjustment

| Mode | Description |
|---|---|
| 021 | MO power A |
| 022 | MO power E |
| 023 | CDL power |
| 024 | CD power |

030 MO adjustment

| Mode | Description |
|---|---|
| 031 | MO EF balance |
| 032 | MO EF gain |
| 033 | MO ABCD gain |
| 034 | MO focus gain |
| 035 | MO tracking gain |
| 036 | MO RF gain |
| 037 | MO ADIP gain |
| 038 | MO focus bias E |
| 039 | CD focus bias A |

040 Lower reflection CD adjustment

| Mode | Description |
|---|---|
| 041 | Lower reflection CD EF balance |
| 042 | Lower reflection CD EF gain |
| 043 | Lower reflection CD ABCD gain |
| 044 | Lower reflection CD focus gain |
| 045 | Lower reflection CD tracking gain |
| 046 | Lower reflection CD RF offset |
| 047 | Lower reflection CD RF gain |
| 048 | Lower reflection CD focus bias |

050 CD adjustment

| Mode | Description |
|---|---|
| 051 | CD EF balance |
| 052 | CD EF gain |
| 053 | CD ABCD gain |
| 054 | CD focus gain |
| 055 | CD tracking gain |
| 056 | CD RF offset |
| 057 | CD RF gain |
| 058 | CD focus bias |

060 Sled movement

| Mode | Description |
|---|---|
| 061 | Sled in |
| 062 | Sled out 5 |

070 Automatic adjustment

| Mode | Description |
|---|---|
| 071 | Focus search |
| 072 | Access 32 |
| 073 | ADER check |
| 074 | Tracking sensitivity adjust |

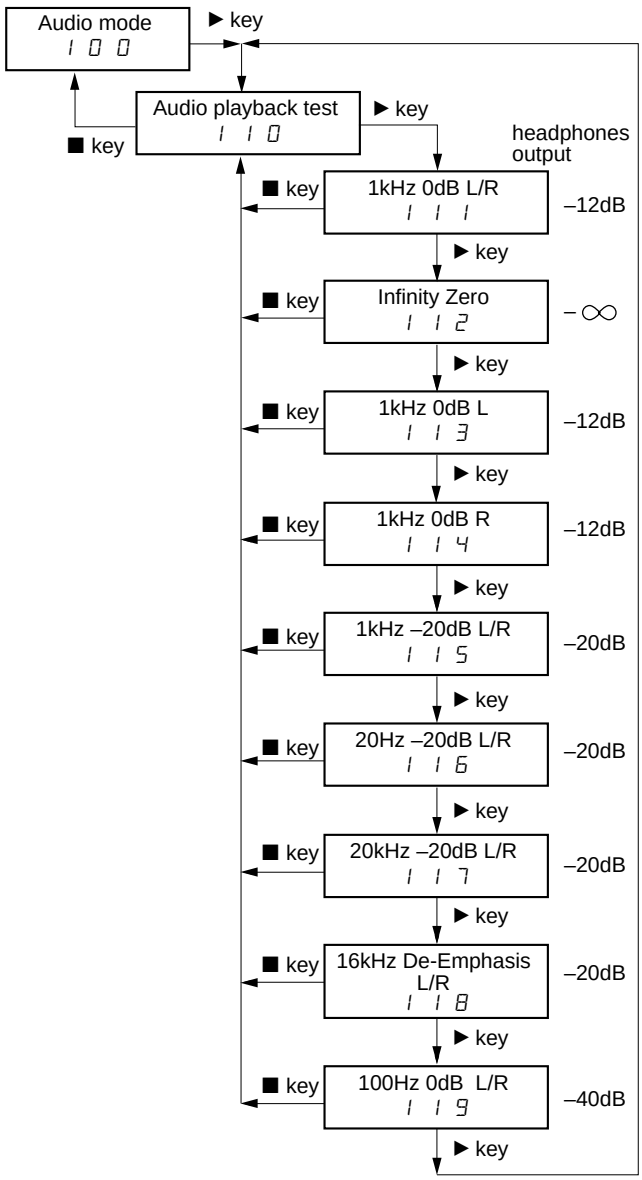
090 NV relation

| Mode | Description |
|---|---|
| 091 | NV clear |
| 092 | Power OFF |
| 093 | Function code change |

**Audio Mode**

- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME + key in this turn to enter audio mode.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Audio Mode



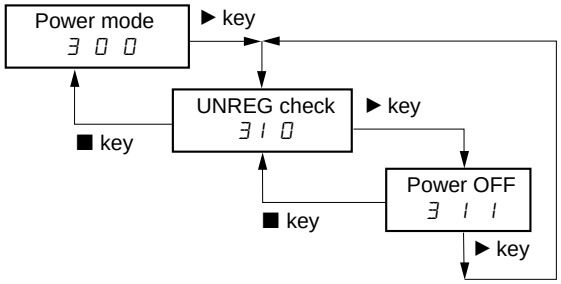

- The mode No. 111 is for S/N and crosstalk. The mode No. 115 is for distortion factor and frequency characteristics.
- When the VOLUME +/– keys is pressed in any mode, the volume of the headphones is changed (increased/decreased) in units of one step. When the ►►I / I◄◄ keys is pressed, the volume of the headphones is maximized/minimized.
- For the volume value, any changed value remains as it is basically.
  However, when the volume is switched from 114 to 115 or 118 to 119, it returns the default value.

# SECTION 5
# ELECTRICAL ADJUSTMENTS

### Power Mode

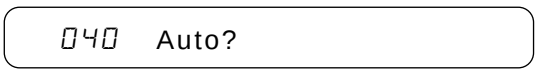
- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME – key in this turn to enter power mode.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Power Mode

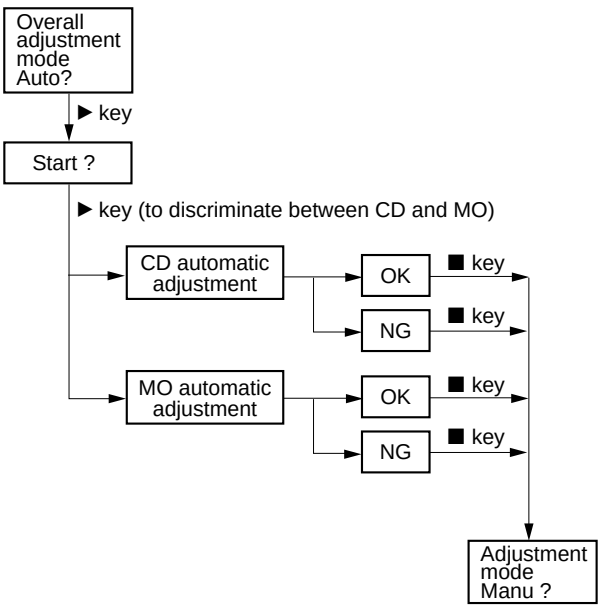



### Overall Adjustment Mode

- Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
- When entering another mode, refer to the configuration of test mode.
- When the overall adjustment mode is entered, the LCD on the remote commander display the following :




1. Structure of Overall Adjustment Mode




### Notes for Adjustment

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode.
- Adjustments are performed in the overall adjustment mode. If an item is determined as NG, the item is readjusted in servo mode.

### Adjustment Method in Overall Adjustment Mode

1. Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
2. Insert the CD test disc (TGYS-1) or SONY MO disc (recorded) commercially available.
3. Press the ► key twice. The disc is determined whether it is CD or MO and each adjustment mode is set. Automatic adjustments are performed in the order of the items listed below.

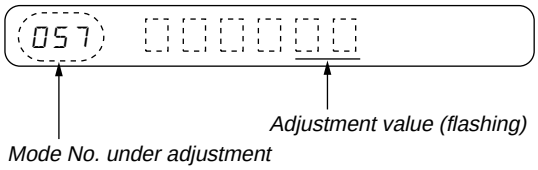
- In CD Automatic adjustment Mode

| No. | Mode | Description |
|---|---|---|
| 1 | 061 | Sled in |
| 2 | 071 | Focus search |
| 3 | 062 | Sled out 5 |
| 4 | 051 | CD EF balance |
| 5 | 052 | CD EF gain |
| 6 | 051 | CD EF balance |
| 7 | 053 | CD ABCD gain |
| 8 | 054 | CD focus gain |
| 9 | 055 | CD tracking gain |
| 10 | 056 | CD RF offset |
| 11 | 057 | CD RF gain |
| 12 | 056 | CD RF offset |
| 13 | 058 | CD Focus bias |

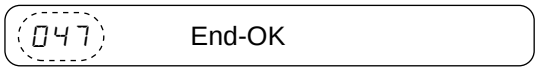
• In MO Automatic adjustment Mode

| No. | Mode | Description |
|---|---|---|
| 1 | 061 | Sled in |
| 2 | 071 | Focus search |
| 3 | 062 | Sled out |
| 4 | 031 | MO EF balance |
| 5 | 032 | MO EF gain |
| 6 | 031 | MO EF balance |
| 7 | 033 | MO ABCD gain |
| 8 | 034 | MO focus gain |
| 9 | 035 | MO tracking gain |
| 10 | 036 | MO RF gain |
| 11 | 037 | MO ADIP gain |
| 12 | 039 | MO focus bias A |
| 13 | 073 | ADER check |
| 14 | 071 | Focus search |
| 15 | 031 | MO EF balance |
| 16 | 032 | MO EF gain |
| 17 | 031 | MO EF balance |
| 18 | 033 | MO ABCD gain |
| 19 | 034 | MO focus gain |
| 20 | 035 | MO tracking gain |
| 21 | 036 | MO RF gain |
| 22 | 037 | MO ADIP gain |
| 23 | 039 | MO focus bias A |
| 24 | 073 | ADER check |
| 25 | 061 | Sled in |
| 26 | 071 | Focus search |
| 27 | 041 | Low reflection CD EF balance |
| 28 | 042 | Low reflection CD EF gain |
| 29 | 041 | Low reflection CD EF balance |
| 30 | 043 | Low reflection CD ABCD gain |
| 31 | 044 | Low reflection CD focus gain |
| 32 | 045 | Low reflection CD tracking gain |
| 33 | 046 | Low reflection CD RF offset |
| 34 | 047 | Low reflection CD RF gain |
| 35 | 061 | Sled in |
| 36 | 071 | Focus search |
| 37 | 041 | Low reflection CD EF balance |
| 38 | 042 | Low reflection CD EF gain |
| 39 | 041 | Low reflection CD EF balance |
| 40 | 043 | Low reflection CD ABCD gain |
| 41 | 044 | Low reflection CD focus gain |
| 42 | 045 | Low reflection CD tracking gain |
| 43 | 046 | Low reflection CD RF offset |
| 44 | 047 | Low reflection CD RF gain |

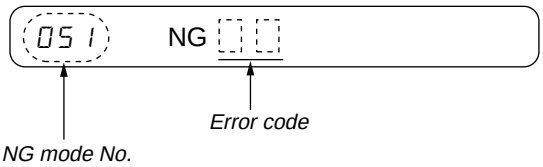
* Remote commander display during automatic adjustment




4. If result of automatic adjustment is OK, the following display appears.




5. If result of automatic adjustment is NG, the following display appears.

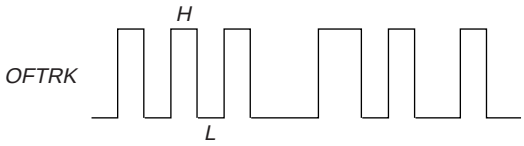



* If NG, enter servo mode to perform automatic adjustment of the item determined as NG.

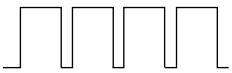
### Adjusting the OFF-track threshold

- Perform only for Ver. 1.000.
- Only for MO (use AU-1 disk).
- Use the following procedure.
- Monitor (adjust) with a storage oscilloscope.

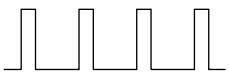
1. Set in Test mode (Manual mode).
2. Press the PLAYMODE key per 030.
   (2.6 volt operating mode ····· Two battery marks light up.)
3. Check that the OP is at the center (not the outermost or innermost circumference) and then play the AU-1 disk (031 ⟶ 032 ⟶ 033).
4. Press the PAUSE key at 033 and adjust the MO ABCD gain.
5. Press the STOP key (030), monitor the OFTRK (SP508) signal and set the focus ON at 031 with the PLAY key.




6. The adjustment is okay when the periods for "H" and "L" of the OFTRK is about equal.
7. Perform an overall adjustment without turning off the power.
8. Perform the following operation when the periods for "H" and "L" of the OFTRK are not equal.
   Press the DISPLAY key 6 times per "030" to set in Memory mode.
   [5C ø] is displayed. Press the remote control ■ key 6 times and use the ▶ key 9 times to align at [629].
   Shift the figure with the remote control ⊖, ⊕ keys per the "629" address and press PAUSE < set > (reset value "OA").
   (1) This figure is small when "H" is long.



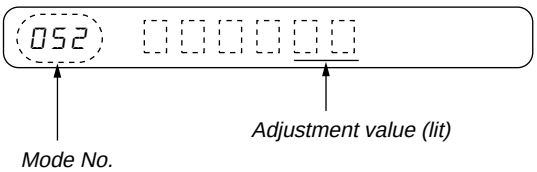

   (2) This figure is large when "L" is long.



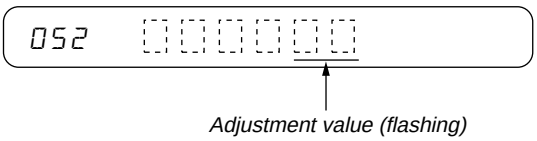

   Press the DISPLAY key one time to return to [030].
9. Return to 5. Press the PLAY key (remote control ▶ key) again to set to 031 (Focus ON).

### Adjustment in Servo Mode Method

1. When each adjustment mode is set according to the structure of servo mode, the lower two digits of the mode No. and the adjustment value written in EEPROM are displayed and lit on the LCD on the remote commander.

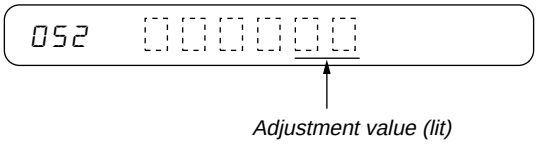



2. When the ❚❚ key is pressed, the following display appears and the automatic adjustment is performed.




**Note)** Although the VOLUME +/– keys can be used to change the adjustment value to any value, they should not be used whenever possible.

3. When the automatic adjustment is completed, the flashing adjustment value is lit.



# SECTION 6
# DIAGRAMS

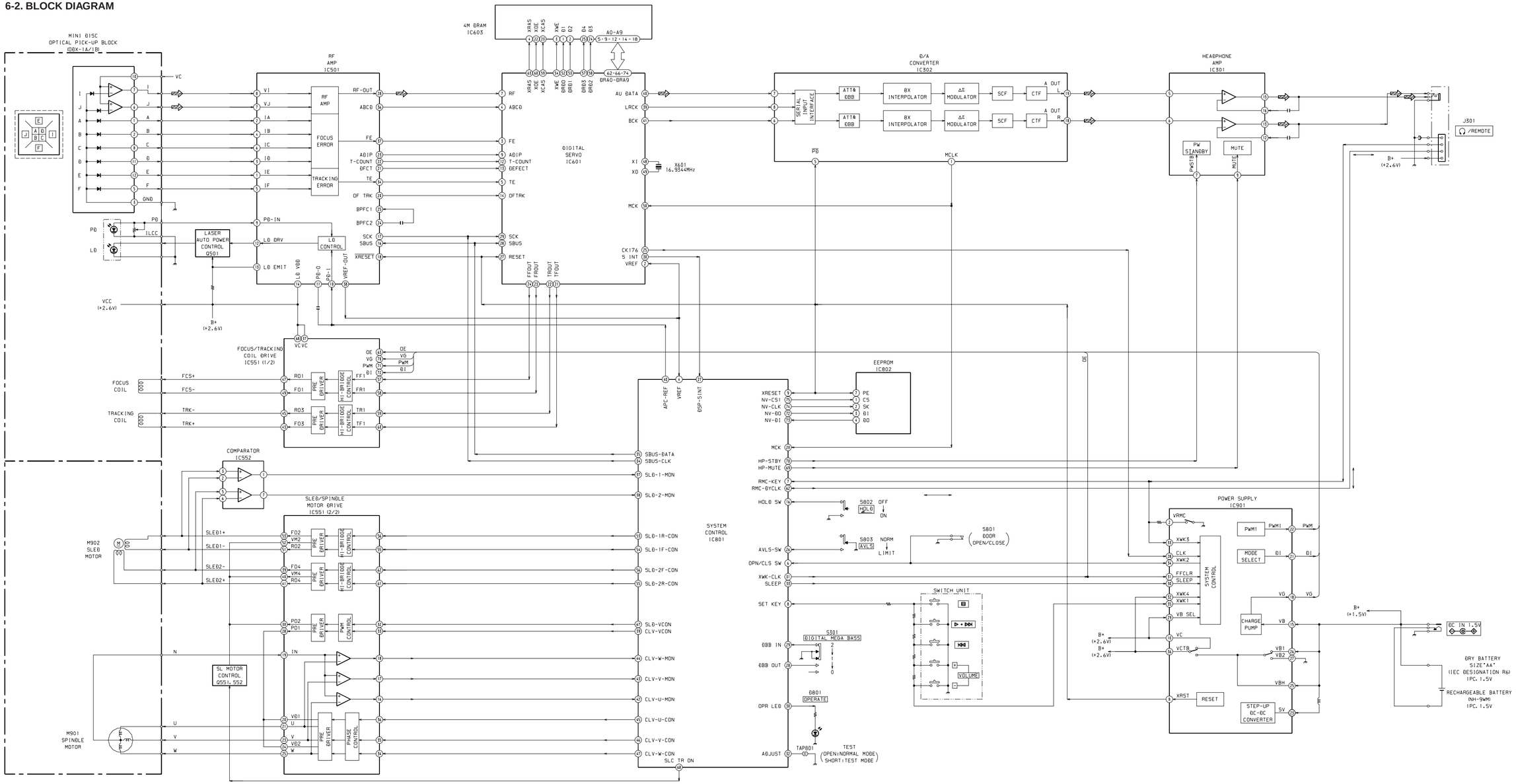
## 6-1. EXPLANATION OF IC TERMINALS

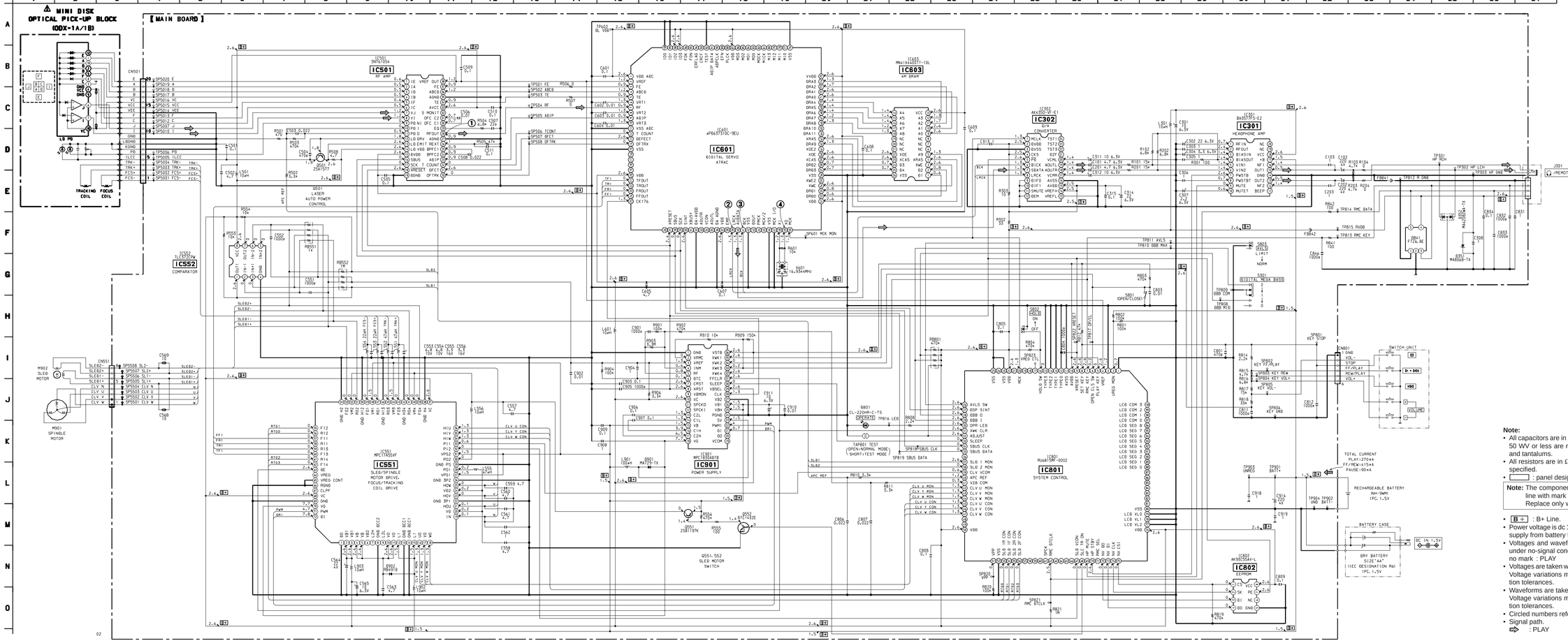
**IC801 RU6815MF-0002 (VERSION 1.000) (SYSTEM CONTROL)**
**IC801 RU6815MF-0003 (VERSION 2.000) (SYSTEM CONTROL)**

| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 1 | | – | Not used (Fixed at “L” ). |
| 2 | UREG MON | I | Unreg voltage monitor input. |
| 3 | | – | Not used (Fixed at “L” ). |
| 4 | VREF | I | Reference voltage for power supply voltage adjustlment. |
| 5 | PLAY KEY | I | Set PLAY key input. |
| 6 | OPEN/CLS SW | I | OPEN/CLOSE switch input. L : Close |
| 7 | RMC KEY | I | Remote commander key input. |
| 8 | SET KEY | I | Set key input. |
| 9 | XRESET | I | Systen reset input (At reset : “L” ). |
| 10 | AVDD | – | A/D converter power supply (+2.6V or +2.8V). |
| 11 | AVSS | – | A/D converter Ground. |
| 12 | TYPE 0 | I | Model discrimination terminal (Fixed at “L” ). |
| 13 | TYPE 1 | I | Model discrimination terminal (Fixed at “L” ). |
| 14 | TYPE 2 | I | Model discrimination terminal (Fixed at “L” ). |
| 15 | MODEL | I | Model discrimination terminal (Fixed at “L” ). |
| 16 | HOLD SW | I | Set HOLD switch input. |
| 17 | VREG CON | O | 2.5V voltage on/off switch (Sub terminal) (not used). |
| 18 | | – | Not used (Open). |
| 19 | | – | Not used (Open). |
| 20 | MCK | I | Master clock input. |
| 21 | | – | Not used (Open). |
| 22 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 23 | VSS | – | Digital Ground. |
| 24 | | – | Not used (Open). |
| 25 | VSS | – | Digital Ground. |
| 26 | AVLS SW | I | Set AVLS switch input. |
| 27 | DSP SINT | I | Interrupt input from DSP. |
| 28 | DBB 0 | I | DIGITAL MEGA BASS switch input (MID). |
| 29 | DBB 1 | O | DIGITAL MEGA BASS switch input (MAX). |
| 30 | OPR LED | O | LED drive output. |
| 31 | XWK CLR | O | Power IC wakeup factor latch clear output and motor driver IC control signal outpt. |
| 32 | ADJUST | I | “Normally, Test mode select input (“L” : Test mode) |
| 33 | SLEEP | O | Power supply circuit OFF signal output. |
| 34 | SBUS CLK | O | SBB serial clock output. |
| 35 | SBUS DATA | O | SBB serial data output. |
| 36 | | – | Not used (Open). |
| 37 | SLD 1 MON | I | Sled servo timing signal input. |
| 38 | SLD 2 MON | I | Sled servo timing signal input. |
| 39 | CLV VCON | O | Spindle servo drive voltage control output. |
| 40 | APC REF | O | Laser power control output. |
| 41 | V28-CON | O | Power voltage (+2.6V or +2.8V) correction control output. |
| 42 | CLV U MON | I | Spindle servo timing signal input. |
| 43 | CLV V MON | I | Spindle servo timing signal input. |
| 44 | CLV W MON | I | Spindle servo timing signal input. |
| 45 | CLV U CON | O | Spindle servo drive signal output. |
| 46 | CLV V CON | O | Spindle servo drive signal output. |
| 47 | CLV W CON | O | Spindle servo drive signal output. |

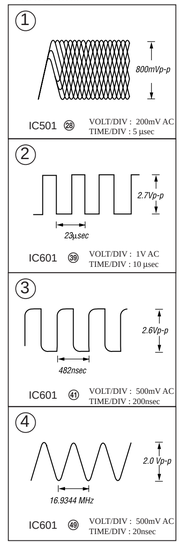
| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 48 | | – | Not used (Open). |
| 49 | | – | Not used (Open). |
| 50 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 51 | VPP | – | Power for on board light. |
| 52 | VSS | – | Digital ground. |
| 53 | SLD 1R CON | O | Sled motor control signal output. |
| 54 | SLD 1F CON | O | Sled motor control signal output. |
| 55 | SLD 2R CON | O | Sled motor control signal output. |
| 56 | SLD 2F CON | O | Sled motor control signal output. |
| 57 | | – | Not used (Open). |
| 58 | | – | Not used (Open). |
| 59 | | – | Not used (Open). |
| 60 | | – | Not used (Open). |
| 61 | SPCK | O | Serial clock output for Remote control communication. Not used (Open). |
| 62 | RMC DTCLK | I/O | Serial data input/output for Remote control communication. |
| 63 – 66 | | – | Not used (Open). |
| 67 | SLD VCON | O | Sled servo outer voltage control output. |
| 68 | SLD PWR-UP | O | Baypass transistor control output for sled drive power supply. |
| 69 | HP MUTE | O | Headphone amplifier mute output. |
| 70 | HP STBY | O | Headphone amplifier standby output. |
| 71 | RMC SEL | O | TSB/SSB selection signal output to remote commander terminal. Not used (Open). |
| 72 | NV D0 | O | Serial data signal output for NVRAM. |
| 73 | NV D1 | I | Serial data signal input from NVRAM. |
| 74 | NV CLK | O | Serial clock signal output for NVRAM. |
| 75 | NV CS1 | O | Chip select signal output for NVRAM. |
| 76 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 77 – 79 | LCD VL2 – 0 | I | LCD drive level power supply (Connected ground). |
| 80 | VSS | – | Digital ground. |
| 81 – 87 | | – | Not used (Open). |
| 88 – 96 | LCD SEG0 – 8 | – | LCD Segment terminal. Not used (Open). |
| 97 – 100 | LCD COM0 – 3 | – | LCD common terminal. Not used (Open). |

## 6-2. BLOCK DIAGRAM






## • WAVEFORMS




**Note:**

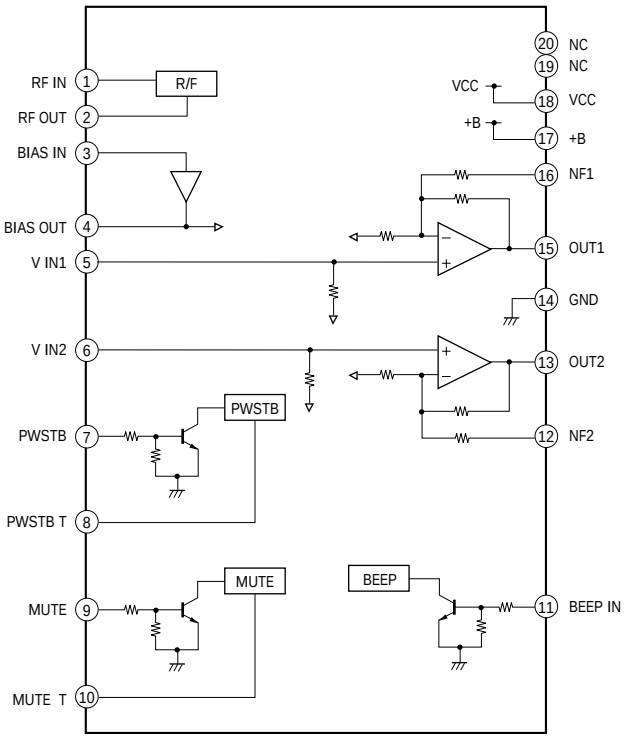
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- [ ] : panel designation.

**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

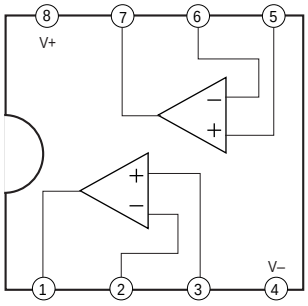
- B+ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : PLAY

## ● IC Block Diagrams

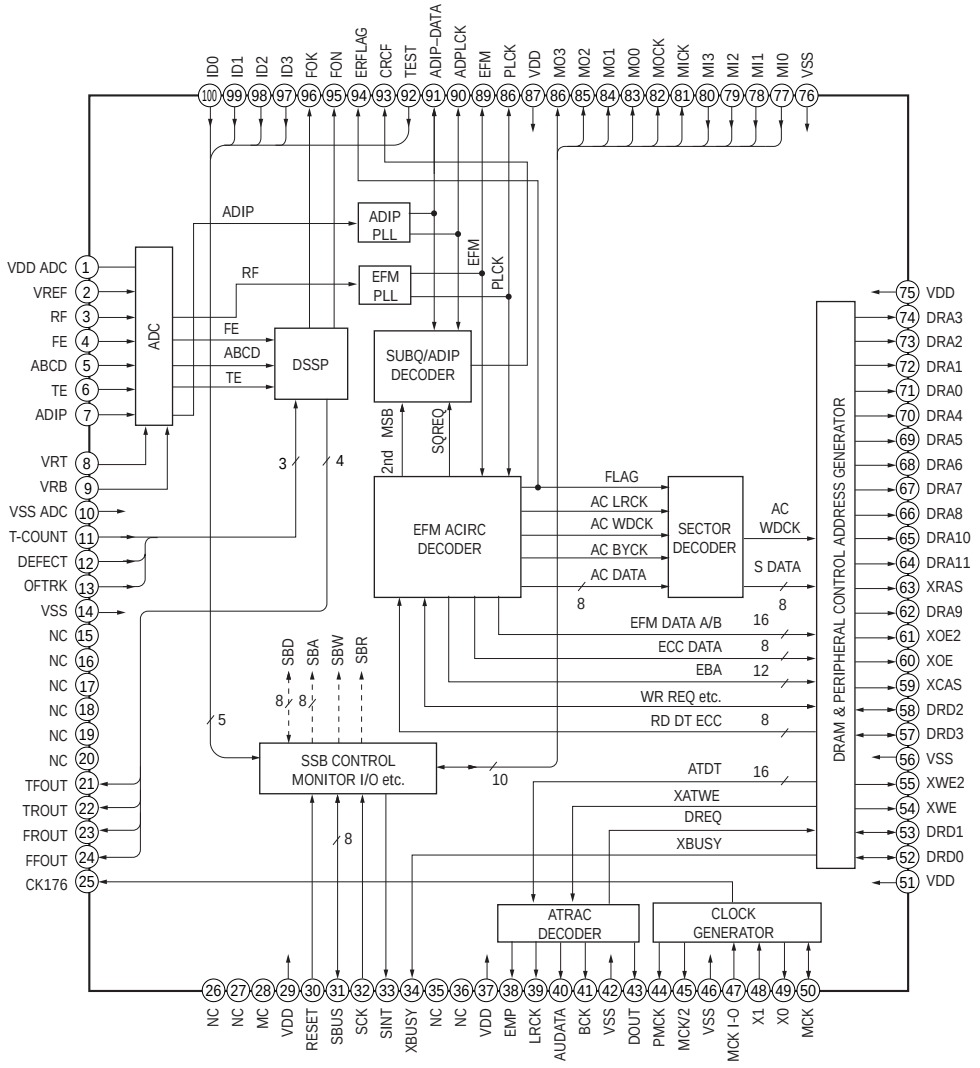
### IC301 BA3577FS-E2



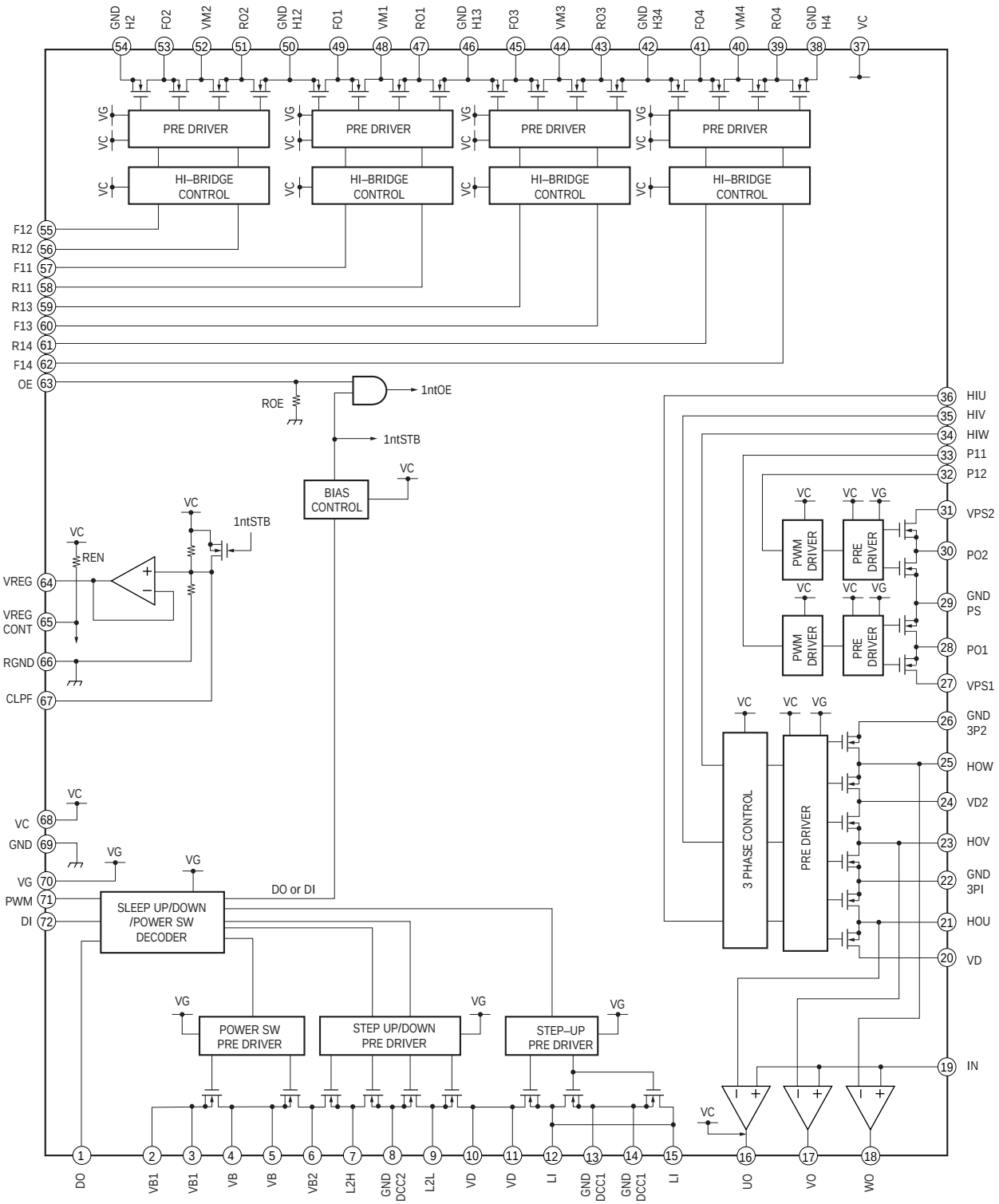

### IC552 TLC372CPWR



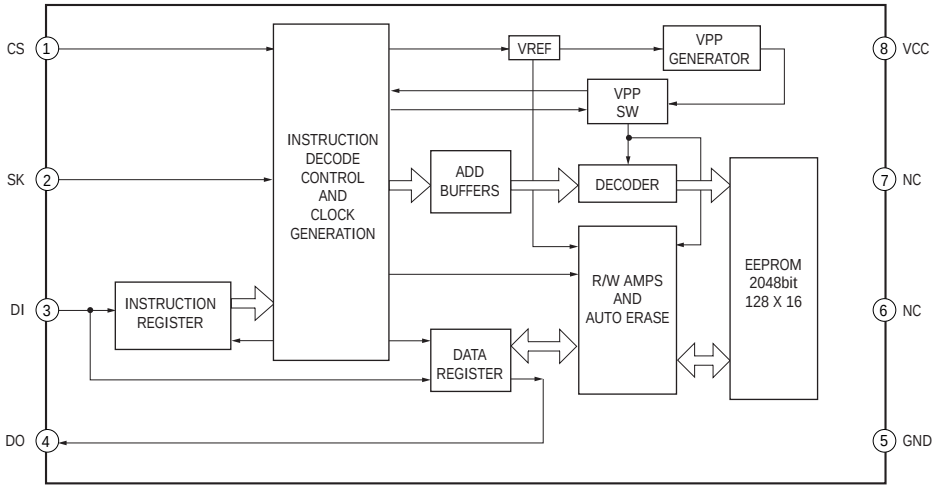

### IC601 μPD63731GC-9EU



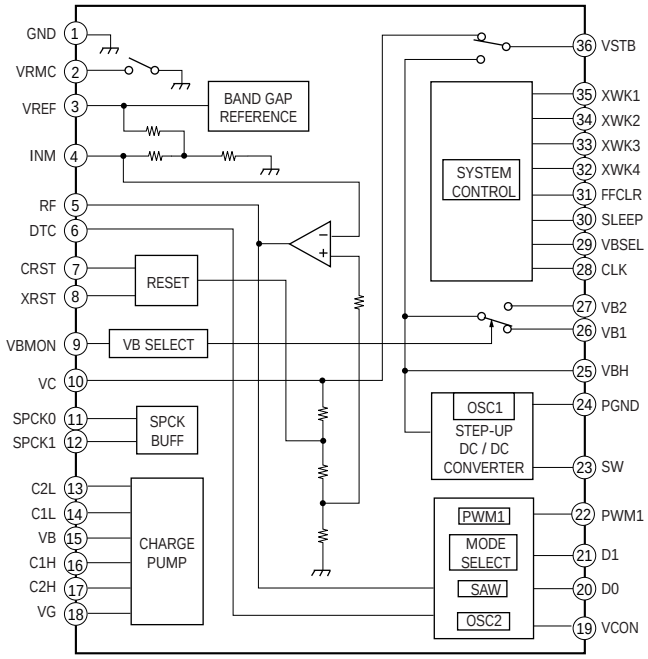
## IC551 MPC17A55FTA



## IC802 AK93C55AV-L




## IC901 MPC1830ADTBEL



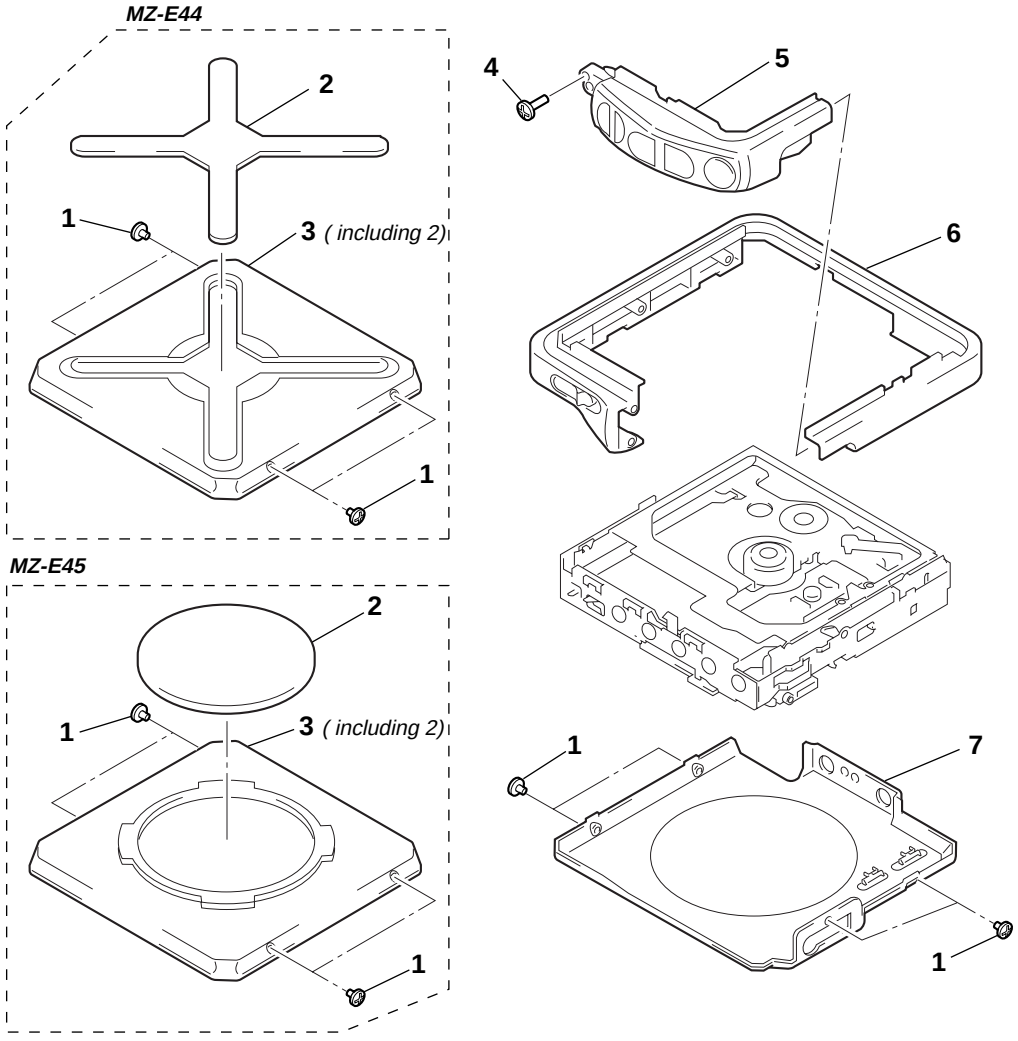
# SECTION 7
# EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ••• (RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.

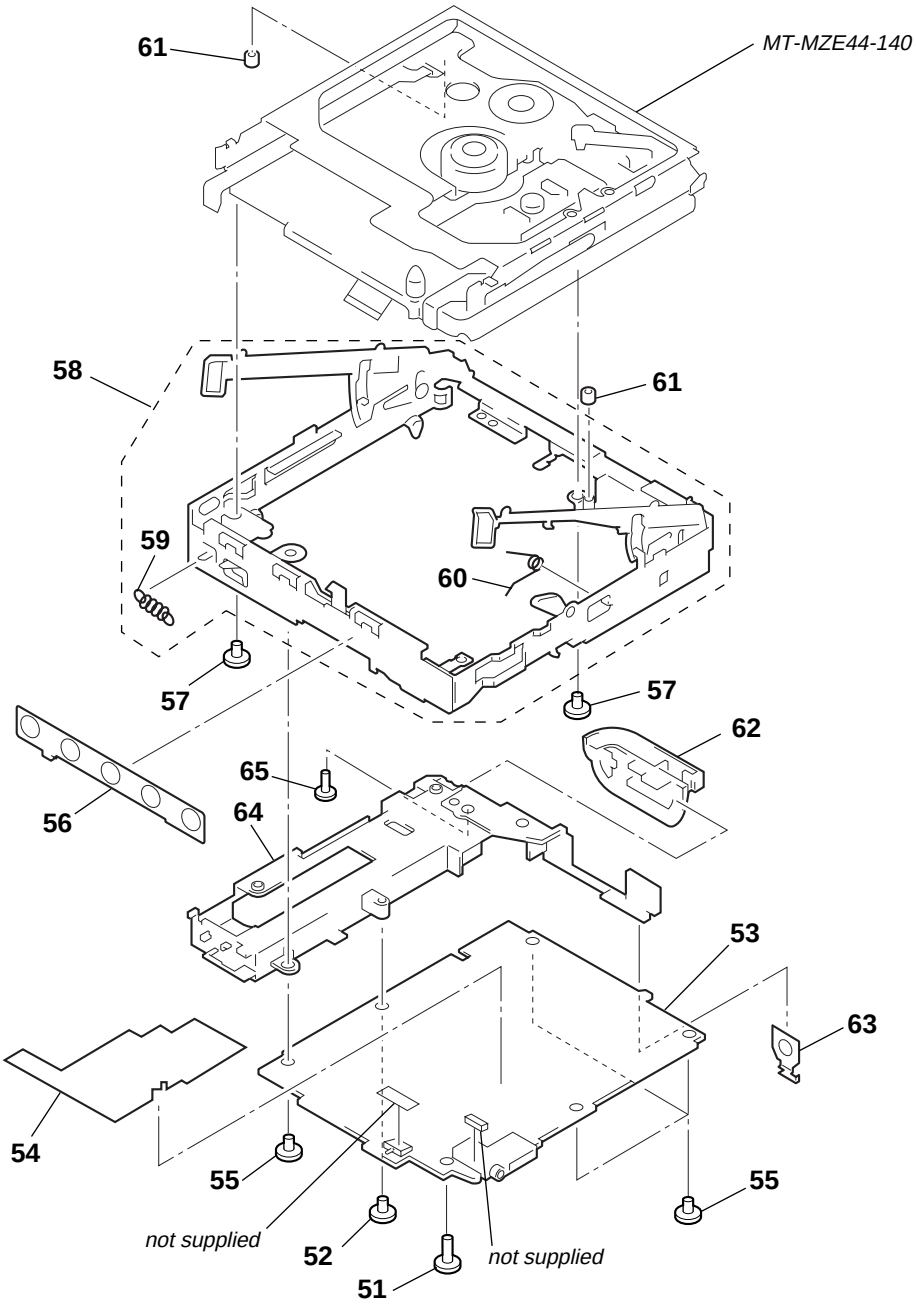
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

## 7-1. PANEL SECTION



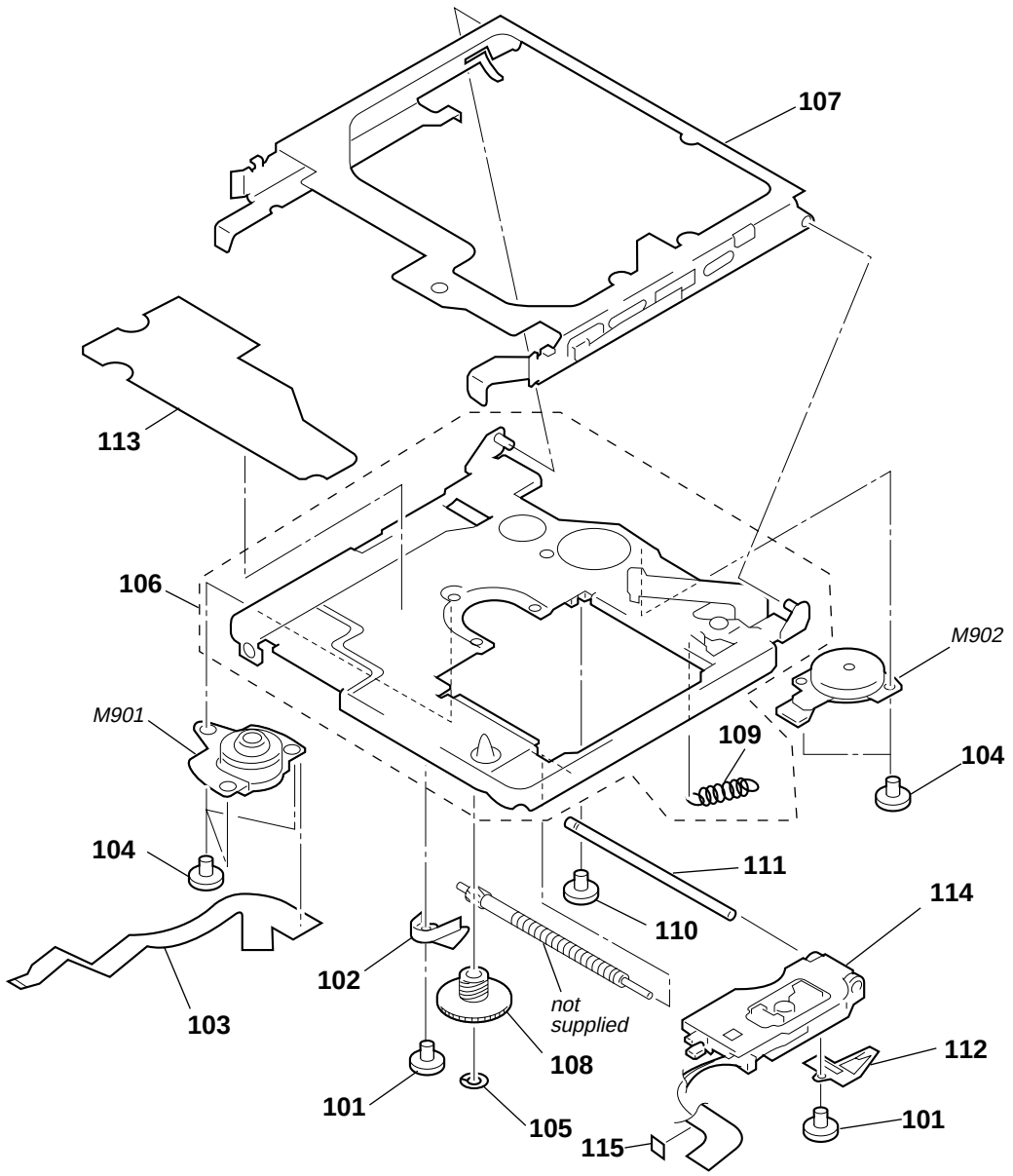

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 4-963-883-21 | SCREW (M1.4), PRECISION PAN (SILVER) | (MZ-E44) |
| 1 | 4-963-883-31 | SCREW (M1.4), PRECISION PAN | (BLUE, ORANGE, GRAY) |
| 2 | 4-211-898-01 | PLATE (X), ORNAMENTAL (SILVER) (MZ-E44) | |
| 2 | 4-211-898-11 | PLATE (X), ORNAMENTAL (BLUE) (MZ-E44) | |
| 2 | 4-211-912-01 | PLATE (ROUND), ORNAMENTAL (GRAY) | (MZ-E45) |
| 2 | 4-211-912-11 | PLATE (ROUND), ORNAMENTAL (ORANGE) | (MZ-E45) |
| 3 | X-4950-233-1 | PANEL ASSY, UPPER (SILVER) (MZ-E44) | |
| 3 | X-4950-234-1 | PANEL ASSY, UPPER (GRAY) (MZ-E45) | |
| 3 | X-4950-238-1 | PANEL ASSY, UPPER (BLUE) (MZ-E44) | |
| 3 | X-4950-242-1 | PANEL ASSY, UPPER (ORANGE) (MZ-E45) | |
| 4 | 4-963-883-81 | SCREW (M1.4), PRECISION PAN | |
| 5 | X-4950-237-1 | PANEL ASSY, FRONT | |
| 6 | X-4950-236-1 | BELT ASSY | |
| 7 | X-4950-235-1 | PANEL ASSY, BOTTOM (SILVER) (MZ-E44) | |
| 7 | X-4950-239-1 | PANEL ASSY, BOTTOM (BLUE) (MZ-E44) | |
| 7 | X-4950-240-1 | PANEL ASSY, BOTTOM (GRAY) (MZ-E45) | |
| 7 | X-4950-241-1 | PANEL ASSY, BOTTOM (ORANGE) (MZ-E45) | |

## 7-2. MAIN SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 3-703-502-11 | SCREW | |
| 52 | 4-984-017-01 | SCREW (1.7), TAPPING | |
| 53 | A-3293-984-A | MAIN BOARD, COMPLETE | |
| 54 | 4-211-392-01 | PLATE, BLIND | |
| 55 | 3-335-797-91 | SCREW (M1.4), TOOTHED LOCK | |
| 56 | 1-475-804-11 | SWITCH UNIT | |
| 57 | 4-211-119-01 | SCREW, STEP | |
| 58 | X-4950-229-1 | CHASSIS ASSY (MAIN SECTION) | |
| 59 | 4-989-078-01 | SPRING (OPEN), TENSION | |
| 60 | 4-995-274-01 | SPRING (O-C), TORSION | |
| 61 | 4-982-418-01 | DAMPER | |
| 62 | 4-211-118-01 | LID, BATTERY CASE | |
| 63 | 4-212-087-01 | TERMINAL | |
| 64 | X-4950-232-1 | CASE ASSY, BATTERY | |
| 65 | 4-963-883-41 | SCREW (M1.4), PRECISION PAN | |

## 7-3. MECHANISM DECK SECTION (MT-MZE44-140)




The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 101 | 4-963-883-61 | SCREW (M1.4), PRECISION PAN | |
| 102 | 4-982-563-01 | SPRING, THRUST | |
| 103 | 1-666-784-13 | FLEXIBLE (CLV) BOARD | |
| 104 | 4-963-883-21 | SCREW (M1.4), PRECISION PAN | |
| 105 | 4-965-893-01 | WASHER, GEAR (A) STOPPER | |
| 106 | X-4950-157-1 | CHASSIS ASSY (MD SECTION) | |
| 107 | X-4948-010-1 | HOLDER ASSY | |
| 108 | 4-982-555-01 | GEAR (A) | |
| 109 | 4-210-659-01 | SPRING, TENSION | |
| 110 | 3-349-825-82 | SCREW, PRECISION | |
| 111 | 4-993-251-01 | SHAFT, MAIN | |
| 112 | 4-982-561-11 | SPRING, RACK | |
| 113 | 4-995-532-02 | COVER, MD | |
| ⚠114 | X-4949-164-1 | OPTICAL PICK-UP BLOCK ASSY | |
| 115 | 4-988-858-01 | SHEET (SW) | |
| M901 | 1-698-991-11 | MOTOR, DC (including PULLEY) (SPINDLE) | |
| M902 | 1-698-764-21 | MOTOR, SLED (including PULLEY) (SLED) | |

# SECTION 8
# ELECTRICAL PARTS LIST

**MAIN**

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ , for example :
  uA.... : µ A.... , uPA.... : µ PA....
  uPB.... : µ PB.... , uPC.... : µ PC....
  uPD.... : µ PD....
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  HK : Hong Kong
  JE : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | A-3293-984-A | MAIN BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C102 | 1-125-899-11 | TANTAL. CHIP | 220uF | 20% | 4V |
| C103 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C201 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C202 | 1-125-899-11 | TANTAL. CHIP | 220uF | 20% | 4V |
| C203 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C301 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C302 | 1-119-750-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C303 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C304 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 6.3V |
| C305 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C306 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C307 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C308 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C311 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C312 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C313 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C314 | 1-119-750-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C315 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C501 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C502 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C503 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C504 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C505 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C506 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C507 | 1-162-919-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C508 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C509 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C510 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C511 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C551 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C552 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C553 | 1-104-850-11 | TANTAL. CHIP | 6.8uF | 20% | 10V |
| C554 | 1-104-850-11 | TANTAL. CHIP | 6.8uF | 20% | 10V |
| C555 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 16V |
| C556 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 16V |
| C557 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C558 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C559 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C560 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C561 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C562 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C563 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C564 | 1-117-232-11 | TANTALUM | 22uF | 20% | 4V |
| C565 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C568 | 1-117-370-11 | CERAMIC CHIP | 10uF | | 10V |
| C569 | 1-117-370-11 | CERAMIC CHIP | 10uF | | 10V |
| C601 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C602 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C603 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C604 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C605 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C607 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C608 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C609 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C801 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C803 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C804 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C805 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C806 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C807 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C808 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C809 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C811 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C812 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C831 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C832 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C833 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C834 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C846 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C901 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C902 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C903 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C904 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C905 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C906 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C907 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C908 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C909 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C910 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |

## MAIN

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C911 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C914 | 1-126-246-11 | ELECT CHIP | 220uF | 20% | 4V |
| C918 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C919 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| | | < CONNECTOR > | | | |
| CN501 | 1-573-360-21 | CONNECTOR, FFC/FPC 20P | | | |
| CN551 | 1-784-226-21 | CONNECTOR, FFC/FPC 8P | | | |
| CN801 | 1-778-154-21 | CONNECTOR, FFC/FPC 6P | | | |
| | | < DIODE > | | | |
| D351 | 8-719-017-58 | DIODE MA8068 | | | |
| D352 | 8-719-045-87 | DIODE MA4Z082WA-TX | | | |
| D801 | 8-719-052-72 | LED CL-220HR-C (OPERATE) | | | |
| D841 | 8-719-066-17 | DIODE FTZ6.8E-T148 | | | |
| D901 | 8-719-420-51 | DIODE MA729 | | | |
| D902 | 8-719-066-16 | DIODE RB491D-T146 | | | |
| | | < FERRITE BEAD > | | | |
| FB841 | 1-414-228-11 | INDUCTOR CHIP | | | |
| FB842 | 1-414-228-11 | INDUCTOR CHIP | | | |
| | | < IC > | | | |
| IC301 | 8-759-431-56 | IC BA3577FS-E2 | | | |
| IC302 | 8-759-541-32 | IC AK4350-VF-E1 | | | |
| IC501 | 8-759-538-56 | IC SN761054 | | | |
| IC551 | 8-759-390-25 | IC MPC17A55FTA | | | |
| IC552 | 8-759-358-40 | IC TLC372CPWR | | | |
| IC601 | 8-759-538-55 | IC uPD63731GC-9EU | | | |
| IC603 | 8-759-527-01 | IC MN41X4400TT-10L | | | |
| IC801 | 8-759-538-58 | IC RU6815MF-0002 (VERSION 1.000) | | | |
| IC801 | 8-759-560-39 | IC RU6815MF-0003 (VERSION 2.000) | | | |
| IC802 | 8-759-449-23 | IC AK93C55AV-L | | | |
| IC901 | 8-759-538-57 | IC MPC1830ADTBEL | | | |
| | | < JACK > | | | |
| J301 | 1-778-179-11 | JACK (🎧 /REMOTE) | | | |
| | | < COIL > | | | |
| L301 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L501 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L551 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L552 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L553 | 1-414-400-11 | INDUCTOR | 22uH | | |
| L554 | 1-414-400-11 | INDUCTOR | 22uH | | |
| L555 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L556 | 1-414-410-21 | INDUCTOR | 10uH | | |
| L601 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L901 | 1-412-032-11 | INDUCTOR CHIP | 100uH | | |
| L902 | 1-416-740-11 | INDUCTOR | | | |
| L903 | 1-414-410-21 | INDUCTOR | 10uH | | |
| | | < TRANSISTOR > | | | |
| Q501 | 8-729-922-10 | TRANSISTOR 2SA1577-QR | | | |
| Q551 | 8-729-904-87 | TRANSISTOR 2SB1197K-R | | | |
| Q552 | 8-729-929-11 | TRANSISTOR DTC143ZE-TL | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < RESISTOR > | | | |
| R101 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R102 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R103 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R104 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R201 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R202 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R203 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R204 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R301 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R302 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/16W |
| R303 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/16W |
| R501 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R502 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R503 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R504 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R505 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R506 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R507 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R508 | 1-216-793-11 | RES,CHIP | 4.7 | 5% | 1/16W |
| R553 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R554 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R555 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R556 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R601 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R801 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R802 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R803 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R804 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R808 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R810 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R811 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R812 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R814 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R815 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R816 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R817 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R818 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R819 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R820 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R821 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R841 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R842 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R901 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R902 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R903 | 1-216-863-11 | RES,CHIP | 3.3M | 5% | 1/16W |
| R904 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R906 | 1-216-827-11 | METAL CHIP | 3.3k | 5% | 1/16W |
| R909 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/16W |
| R910 | 1-218-871-11 | RES,CHIP | 10K | 0.50% | 1/16W |
| | | < COMPOSITION CIRCUIT BLOCK > | | | |
| RB551 | 1-233-961-11 | RES, NETWORK (CHIP TYPE) | 1K | | |
| RB552 | 1-233-979-11 | RES, NETWORK (CHIP TYPE) | 1M | | |
| RB801 | 1-233-977-11 | RES, NETWORK (CHIP TYPE) | 470K | | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < SWITCH > | |
| S301 | 1-762-079-11 | SWITCH, SLIDE (DIGITAL MEGABASS) | |
| S801 | 1-572-688-11 | SWITCH, PUSH (1 KEY) (OPEN/CLOSE) | |
| S802 | 1-762-078-11 | SWITCH, SLIDE (HOLD ➞) | |
| S803 | 1-762-078-11 | SWITCH, SLIDE (AVLS) | |
| | | < VIBRATOR > | |
| X601 | 1-767-621-11 | VIBRATOR, CERAMIC (16.9344MHz) | |
| ********** | | | |
| | | MISCELLANEOUS | |
| | | ********** | |
| 56 | 1-475-804-11 | SWITCH UNIT | |
| 103 | 1-666-784-13 | FLEXIBLE (CLV) BOARD | |
| ⚠114 | X-4949-164-1 | OPTICAL PICK-UP BLOCK ASSY | |
| M901 | 1-698-991-11 | MOTOR, DC (SPINDLE) | |
| M902 | 1-698-764-21 | MOTOR, SLED (SLED) | |
| ********** | | | |
| | | ACCESSORIES & PACKING MATERIALS | |
| | | ********** | |
| | 1-475-831-11 | REMOTE CONTROL UNIT | |
| ⚠ | 1-528-580-21 | BATTERY CHARGER (BC-7HT) (JE) | |
| | 1-528-743-11 | BATTERY, NICKEL HYDROGEN | |
| ⚠ | 1-528-866-11 | BATTERY CHARGER (BC-9HP2) (HK) | |
| ⚠ | 1-569-007-11 | ADAPTOR, CONVERSION 2P (JE) | |
| | 1-759-628-11 | CASE, BATTERY | |
| | 3-008-521-01 | CASE, BATTERY CHARGE | |
| | 3-864-524-11 | MANUAL, INSTRUCTION (SPANISH, CHINESE) | |
| | 3-864-524-21 | MANUAL, INSTRUCTION (ENGLISH, FRENCH) | |
| | 3-864-524-61 | MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JE) | |
| | 4-212-536-01 | STRAP, HAND | |
| | 4-972-888-01 | CASE, CARRYING | |
| | 8-953-218-90 | HEADPHONE MDR-E838SP//K SET | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-924-929-11

**Sony Corporation**
**Personal A&V Products Company**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**Published by Quality Engineering Dept.**
**(Shibaura)**

# MZ-E44/E45

# SERVICE MANUAL

*E Model*
*Tourist Model*

**Ver 1.0 1998.07**

Photo : MZ-E44 (SILVER)

Photo : MZ-E45 (GRAY)

US and foreign patents licensed from Dolby Laboratories Licensing Corporation

| | |
|---|---|
| Model Name Using Similar Mechanism | NEW |
| MD Mechanism Type | MT-MZE44-140 |
| Optical Pick-up Mechanism Type | ODX-1A/1B |

## SPECIFICATIONS

**MD Section**

Audio playing system
Minidisc digital audio system
Laser diode properties
Material : GaAlAs
Wavelength : λ =790nm
Emission duration : continuous
Laser output : less than 44.6 μW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7mm aperture.
Revolutions
400 rpm to 900 rpm (CLV)
Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency
44.1kHz
Coding
Adaptive Transform Acoustic Coding (ATRAC)
Modulation system
EFM (Eight to Fourteen Modulation)
Number of channels
2 stereo channels
1 monaural channel
Frequency response
20 to 20,000 Hz ± 3 dB
Wow and Flutter
Below measurable limit
Outputs
Headphones : stereo mini-jack, maximum output level 5mW+5mW, load impedance 16 ohm

**General**

Power requirements
Rechageable battery (supplied)
Nickel metal hydride rechargeable battery NH-9WM (N)
One LR6 (size AA) alkaline battery (not supplied)
Sony AC Power Adaptor AC-E15L (not supplied) connected at the DC IN 1.5V jack
Battery operation time

| Batteries | Playback |
|---|---|
| Nickel metal hydride Rechargeable battery (NH-9WM (N)) | Approx. 5.5 hours |
| One LR6 (size AA) Sony alkaline dry batteries | Approx. 8.5 hours |
| Nickel metal hydride (NH-9WM (N)) + One LR6 (size AA) | Approx. 16 hours |

Dimensions
Approx. 87 x 17.8 x 91.5 mm (w/h/d)
(3 1/2 x 23/32 x 3 5/8 in) not including projecting parts and controls
Mass
Approx. 115 g (4.1 oz.) the player only
Approx. 155 g (5.5 oz.) incl. a premastered MD and a nickel metal hydride rechargeable battery NH-9WM (N)
Supplied accessories
Battery charger (1)
Rechargeable battery (1)
Rechargeable battery carrying case (1)
Headphones with a remote control (1)
Dry battery case (1)
Handstrap (1)
Carrying pouch (1)
LR6 (size AA) alkaline battery (1) (Tourist model only)

Design and specifications are subject to change without notice.

## PORTABLE MINIDISC PLAYER

MICROFILM

SONY®

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This Mini Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

"MD WALKMAN" is a trademark of Sony Corporation.

**CAUTION**
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**Flexible Circuit Board Repairing**
- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

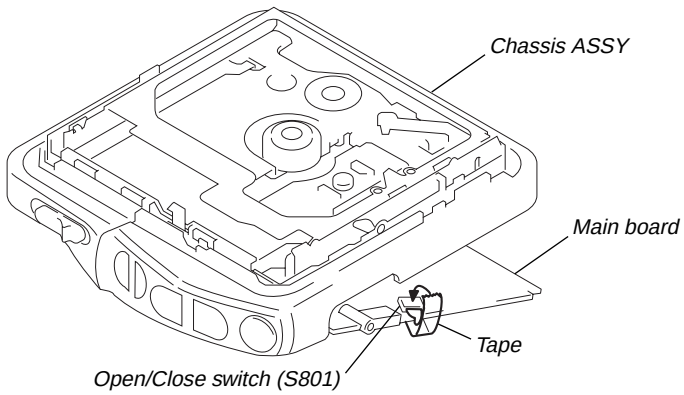
**Notes on chip component replacement**
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

# SECTION 1
# SERVICING NOTE

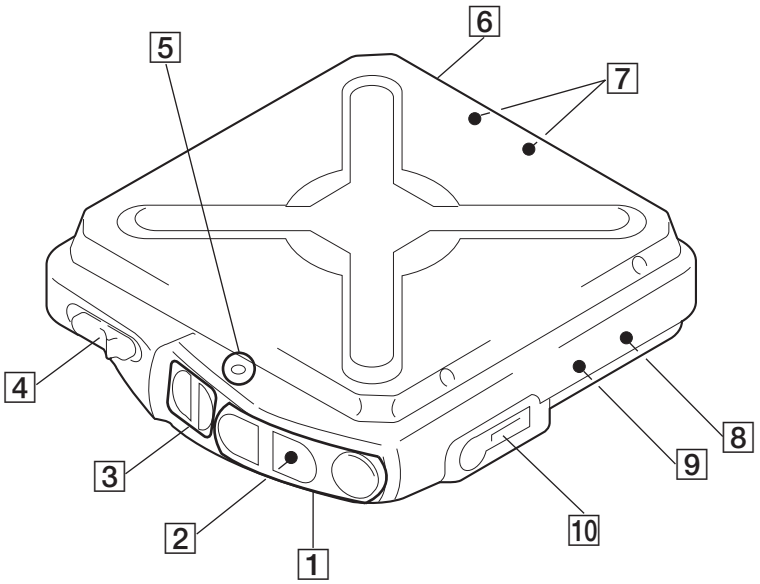
When repairing this device with the power on, if you remove the main board, this device stops working.
In this case, you work without the device stopping by fastening the hook of the Open/Close detection switch (S801) with tape.



# SECTION 2
# GENERAL

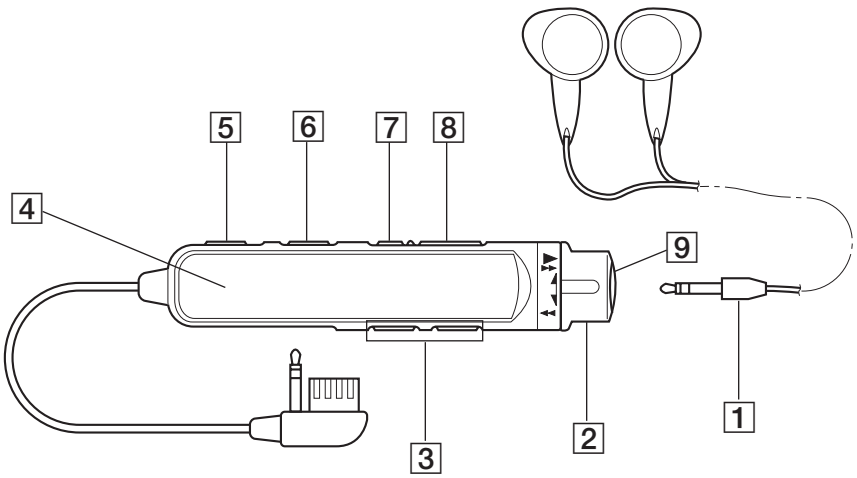
## LOCATION AND FUNCTION OF CONTROLS

### Main Unit




1 MD operate buttons
▶ • ▶▶I (PLAY • FF )
I◀◀ (REW )
■ (STOP)
2 HOLD switch
3 VOLUME +/– buttons
4 EJECT button
5 OPERA TE lamp
6 Battery compartment
7 External battery terminal (+/–)
8 DIGITAL MEGA B ASS s witc h
9 AVLS s witc h
10 🎧 / REMOTE jack

### Headphones with Remote Control




1 Headphones
2 MD operate switch and buttons
▶ • ▶▶I (PLAY • FF)
I◀◀ (REW)
■ (STOP)
3 VOL +/– button
4 Display indicator
5 DISPLA Y button
6 PLAYMODE b utton
7 ❚❚(PAUSE) b utton
8 HOLD ➡ switch
9 ■(STOP) b utton

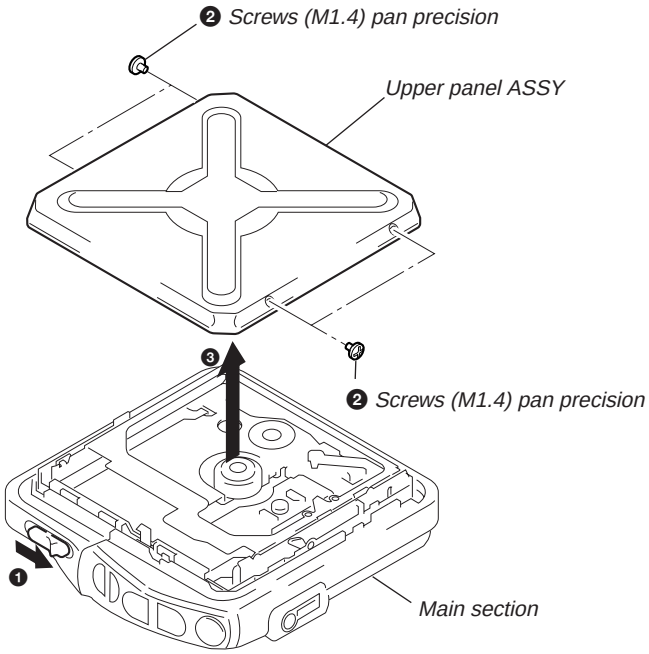
# SECTION 3
# DISASSEMBLY

● The equipment can be removed using the following procedure.

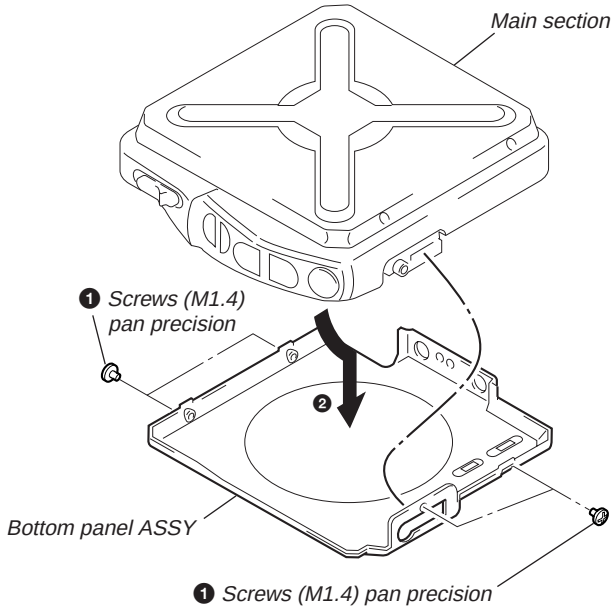
set → Upper panel ASSY / Bottom panel ASSY → Main board → Belt ASSY, Front panel ASSY → Mechanism deck section → Optical pick-up block ASSY

**Note :** Follow the disassembly procedure in the numerical order given.

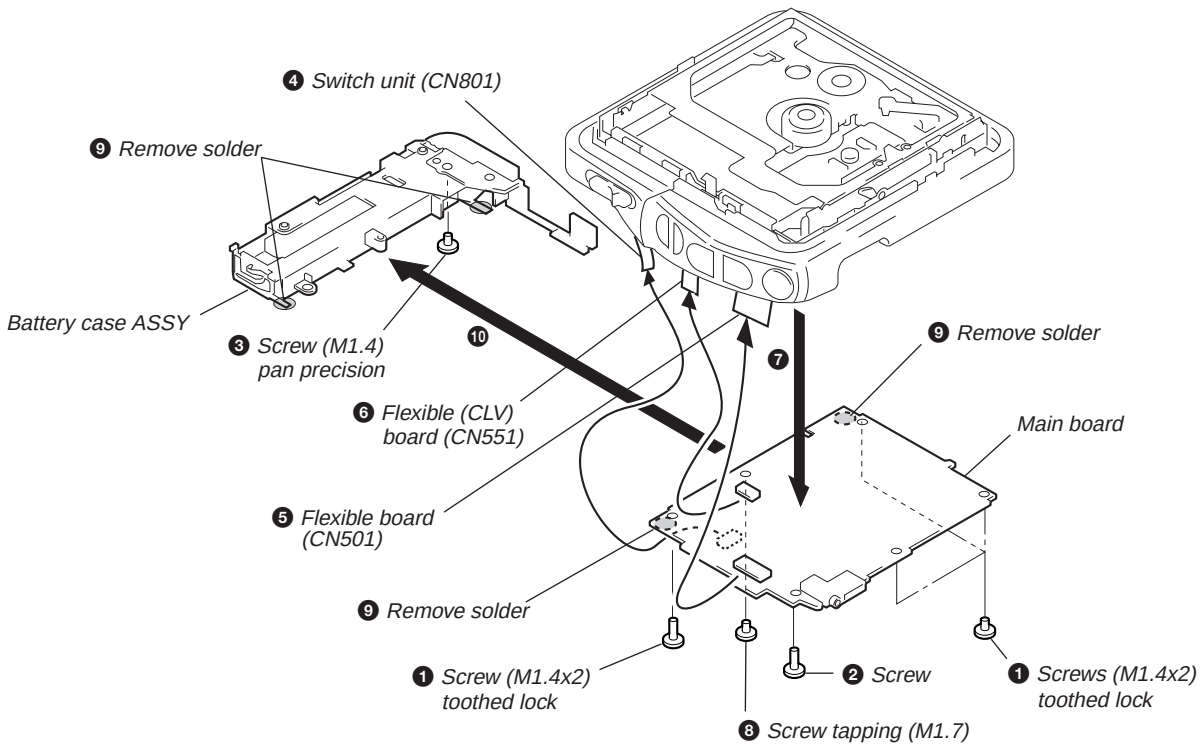
## 3-1. UPPER PANEL ASSY



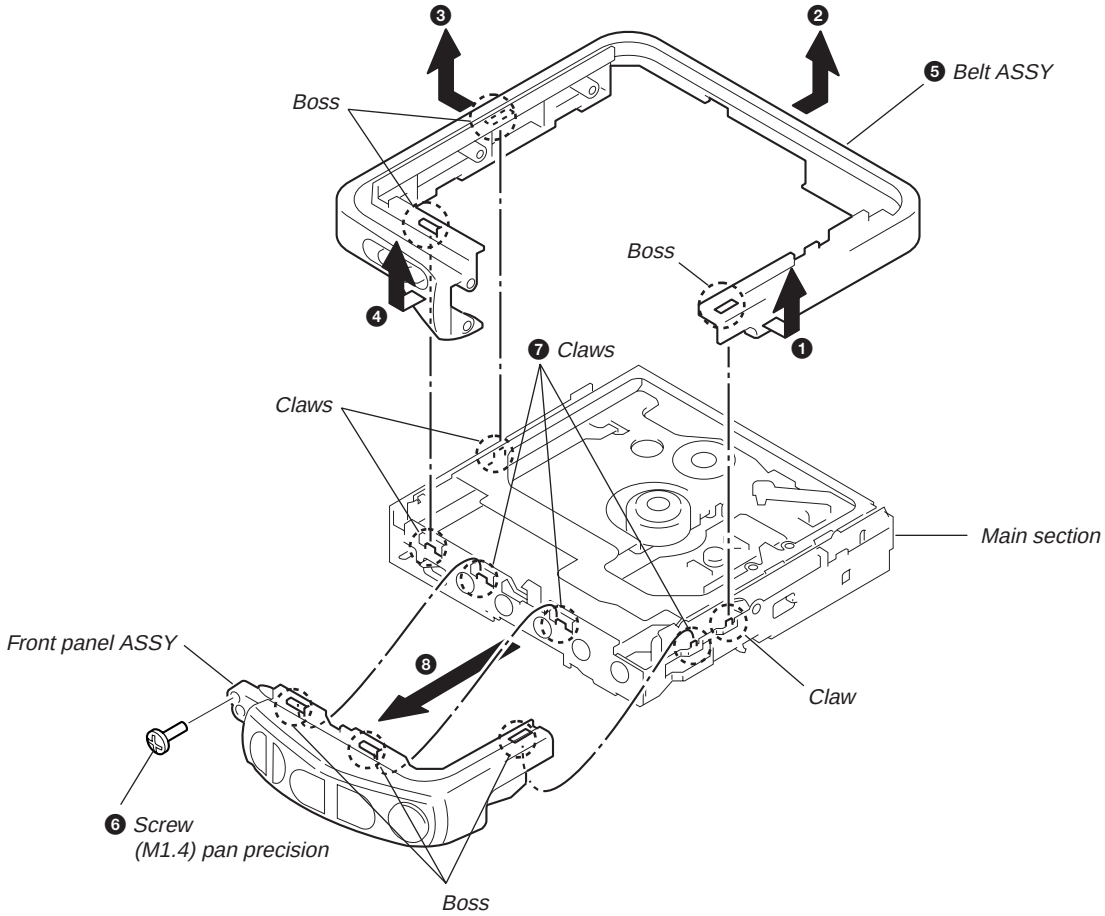

## 3-2. BOTTOM PANEL ASSY



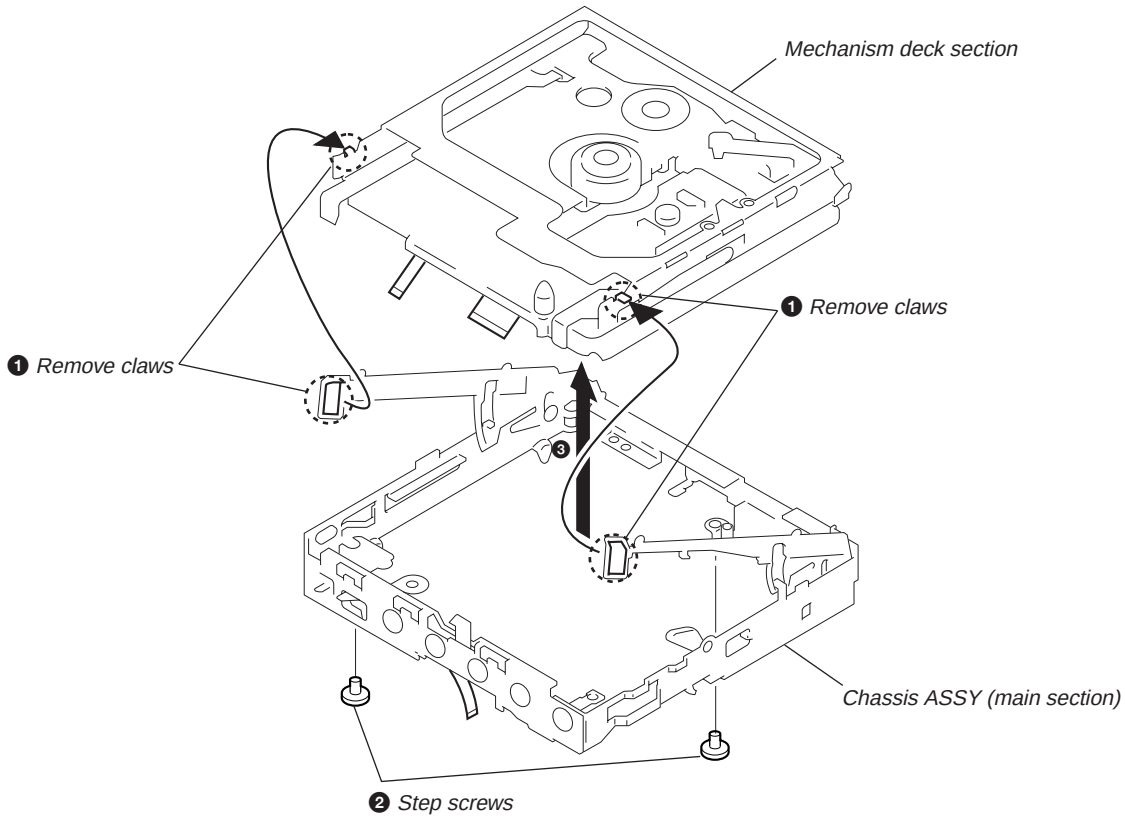

## 3-3. MAIN BOARD



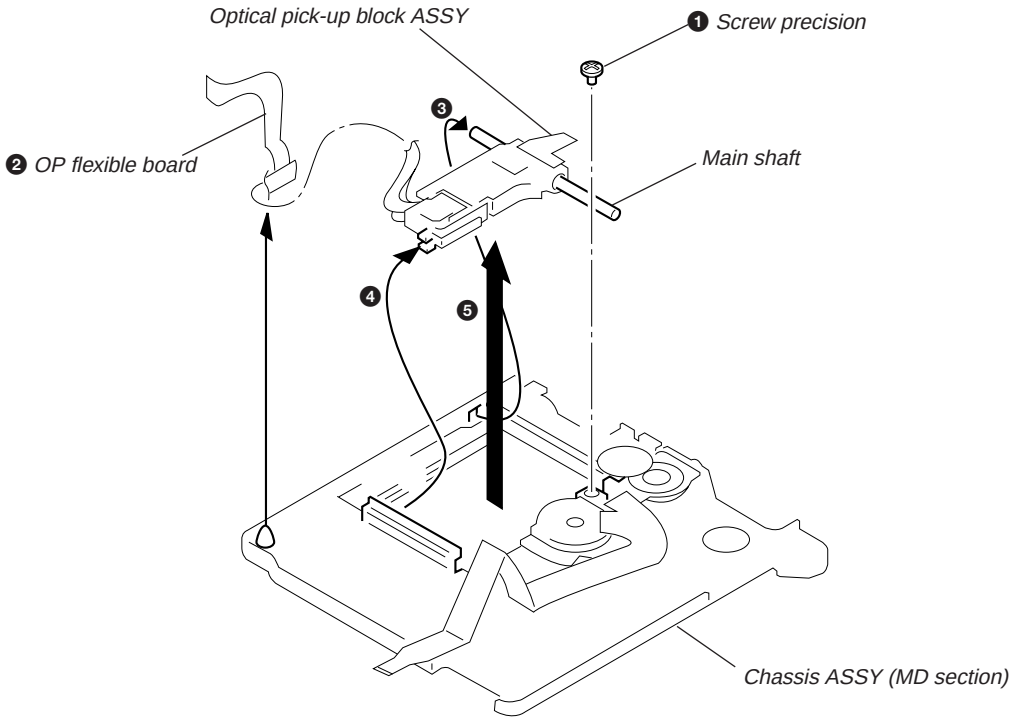
### 3-4. BELT ASSY, FRONT PANEL ASSY




### 3-5. MECHANISM DECK SECTION



## 3-6. OPTICAL PICK-UP BLOCK ASSY

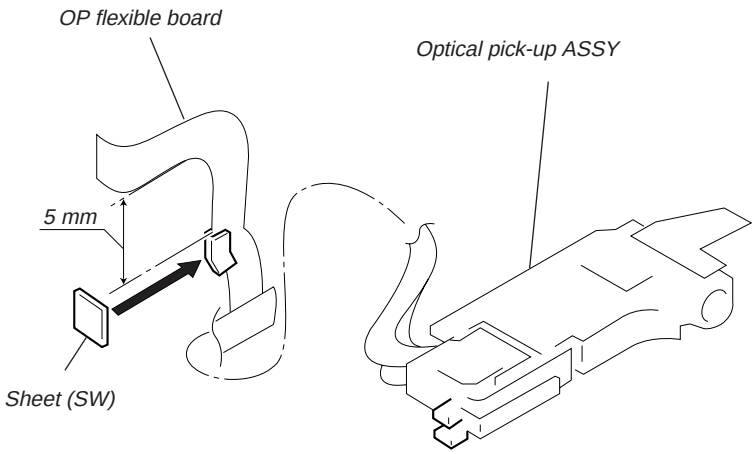



● **NOTE**

When replacing the optical block, the OP flexible board protective sheet (SW) is necessary.
Before replacing, check where the sheet (SW) is pasted onto the old OP flexible board and paste it on the new OP flexible board in the same way.

**Pasting on the sheet (SW) :**

Paste on aligning the sheet (SW) center section with the edge of the OP flexible board as in the figure and folding the excess over onto the opposite side.



# SECTION 4
# TEST MODE

### Outline

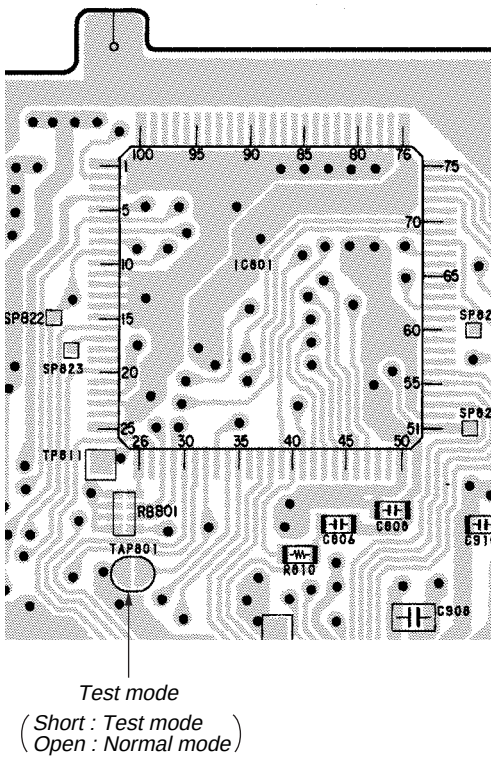
- In this set, overall adjustment mode is made available by entering test mode to perform automatic adjustment of CD and MO. In the overall adjustment mode, the disc is determined whether it is CD or MO and adjustments are performed in sequence. If a fault is found, the location of the fault is displayed. Also, in servo mode, each adjustment can be automatically made.

### Setting the Test Mode

To enter the test mode, two methods are available :

1. Entering method with key input.
   Turn on the HOLD switch on the set. While holding down the ■ key on the set, press the following remote commander keys in the following order :
   ▶▶I → ▶▶I → I◀◀ → I◀◀ → ▶▶I → I◀◀ → ▶▶I → I◀◀ → II → II
2. Entering method by shorting the test point
   Solder bridge the test point TAP801 (TEST) on the main board (connect IC801 pin ㉜ to GND), and turn on the POWER.

**[MAIN BOARD]** (Conductor side)

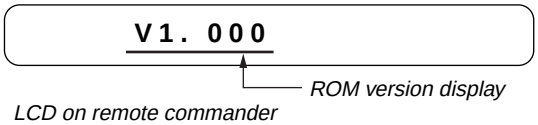



### Releasing the Test Mode

1. When test mode was entered with key input, turn off the POWER.
2. When test mode was entered by shorting the test point, turn off the POWER and open the solder bridge of TAP801 (TEST MODE) on the main board.

### Operation of Setting on Test Mode

When the test mode is set, the LCD displays the following :

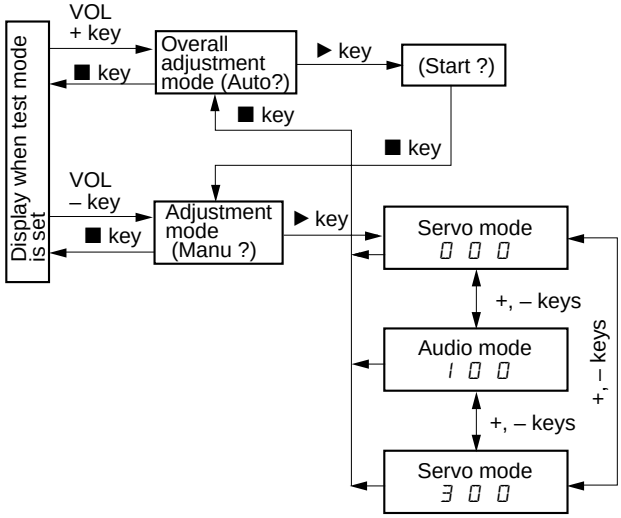



LCD on remote commander

- The cycle - the above ROM version display ⟶ All lit ⟶ All off - is repeated.
  (The ROM version is constantly displayed.)
- When the PLAY MODE key is pressed and hold down, the display at that time is held so that display can be checked.

### Configuration of Test Mode

The test mode has the configuration given below.

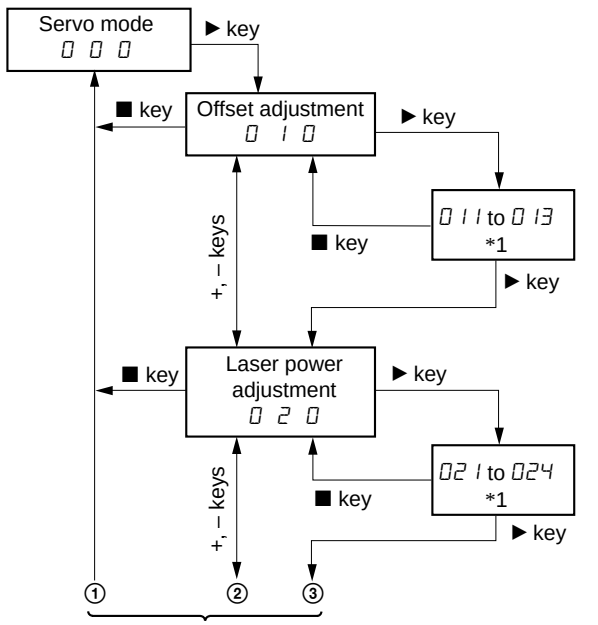



Displays of the LCD on the remote commander are shown in parentheses.

### Servo Mode

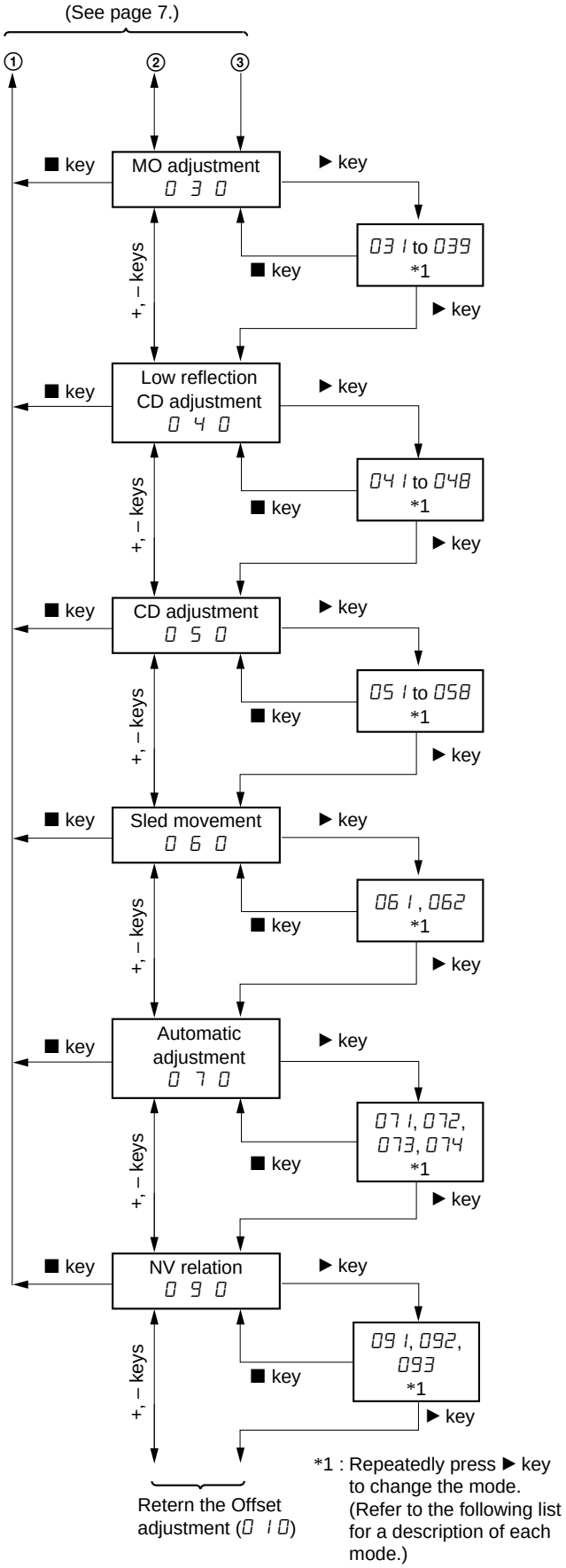
- Set the test mode, press the VOLUME – key and use the ▶ key to set the servo mode.
- When the servo mode is set, use the ▶▶I key and the I◀◀ key to move the optical pick-up to the outer circumference and to the inner circumference respectively.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Servo Mode




(See page 8)

*1 Repeatedly press ▶ key to change the mode. (Refer to the following list for a description of each mode.)




2. Description of Each Mode

0 10 Offset adjustment

| Mode | Description |
|---|---|
| 011 | FE offset |
| 012 | TE offset |
| 013 | All servo ON |

020 Laser power adjustment

| Mode | Description |
|---|---|
| 021 | MO power A |
| 022 | MO power E |
| 023 | CDL power |
| 024 | CD power |

030 MO adjustment

| Mode | Description |
|---|---|
| 031 | MO EF balance |
| 032 | MO EF gain |
| 033 | MO ABCD gain |
| 034 | MO focus gain |
| 035 | MO tracking gain |
| 036 | MO RF gain |
| 037 | MO ADIP gain |
| 038 | MO focus bias E |
| 039 | CD focus bias A |

040 Lower reflection CD adjustment

| Mode | Description |
|---|---|
| 041 | Lower reflection CD EF balance |
| 042 | Lower reflection CD EF gain |
| 043 | Lower reflection CD ABCD gain |
| 044 | Lower reflection CD focus gain |
| 045 | Lower reflection CD tracking gain |
| 046 | Lower reflection CD RF offset |
| 047 | Lower reflection CD RF gain |
| 048 | Lower reflection CD focus bias |

050 CD adjustment

| Mode | Description |
|---|---|
| 051 | CD EF balance |
| 052 | CD EF gain |
| 053 | CD ABCD gain |
| 054 | CD focus gain |
| 055 | CD tracking gain |
| 056 | CD RF offset |
| 057 | CD RF gain |
| 058 | CD focus bias |

060 Sled movement

| Mode | Description |
|---|---|
| 061 | Sled in |
| 062 | Sled out 5 |

070 Automatic adjustment

| Mode | Description |
|---|---|
| 071 | Focus search |
| 072 | Access 32 |
| 073 | ADER check |
| 074 | Tracking sensitivity adjust |

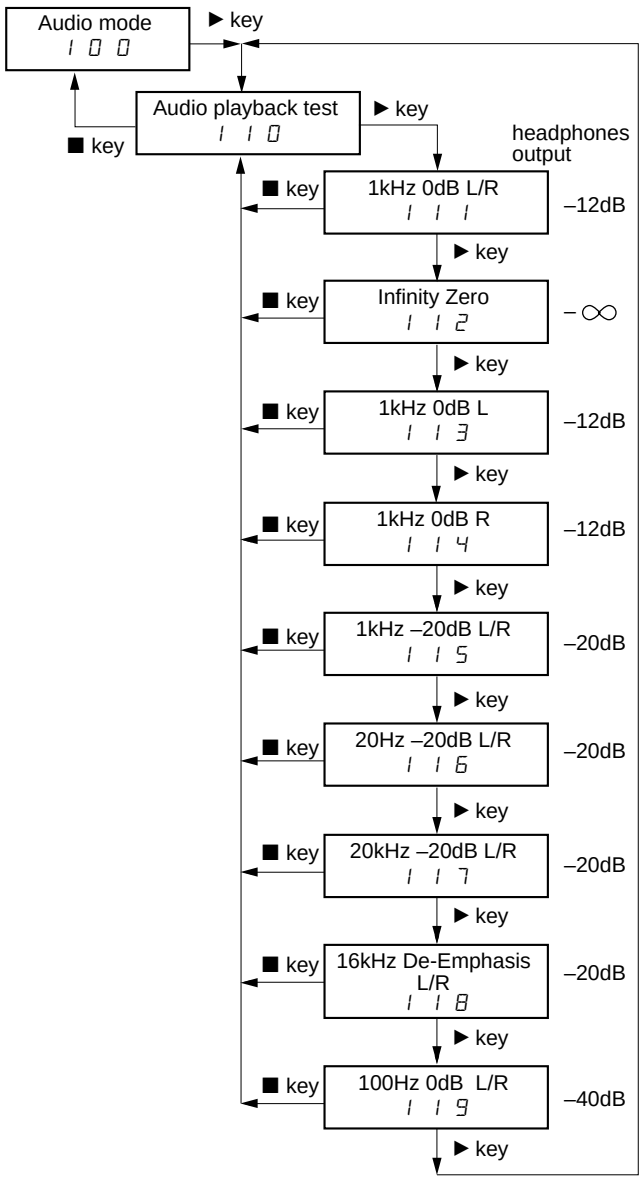
090 NV relation

| Mode | Description |
|---|---|
| 091 | NV clear |
| 092 | Power OFF |
| 093 | Function code change |

**Audio Mode**

- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME + key in this turn to enter audio mode.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Audio Mode



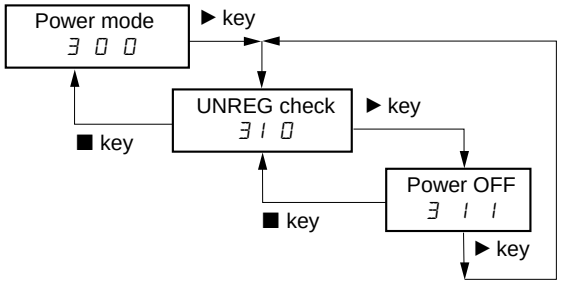

- The mode No. 111 is for S/N and crosstalk. The mode No. 115 is for distortion factor and frequency characteristics.
- When the VOLUME +/– keys is pressed in any mode, the volume of the headphones is changed (increased/decreased) in units of one step. When the ►►I / I◄◄ keys is pressed, the volume of the headphones is maximized/minimized.
- For the volume value, any changed value remains as it is basically.
  However, when the volume is switched from 114 to 115 or 118 to 119, it returns the default value.

# SECTION 5
# ELECTRICAL ADJUSTMENTS

### Power Mode

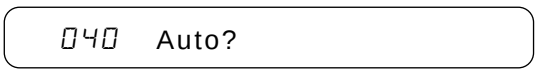
- Enter the test mode and press the VOLUME – key. Then, press the ► key and the VOLUME – key in this turn to enter power mode.
- When entering another mode, refer to the configuration of test mode.

1. Structure of Power Mode

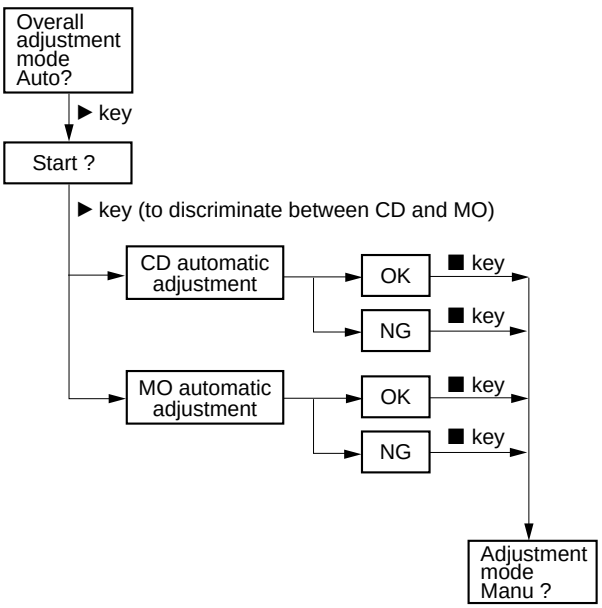



### Overall Adjustment Mode

- Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
- When entering another mode, refer to the configuration of test mode.
- When the overall adjustment mode is entered, the LCD on the remote commander display the following :




1. Structure of Overall Adjustment Mode




### Notes for Adjustment

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode.
- Adjustments are performed in the overall adjustment mode. If an item is determined as NG, the item is readjusted in servo mode.

### Adjustment Method in Overall Adjustment Mode

1. Enter the test mode and press the VOLUME + key to enter overall adjustment mode.
2. Insert the CD test disc (TGYS-1) or SONY MO disc (recorded) commercially available.
3. Press the ► key twice. The disc is determined whether it is CD or MO and each adjustment mode is set. Automatic adjustments are performed in the order of the items listed below.

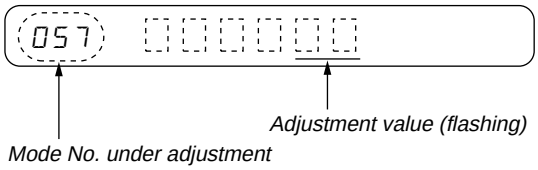
- In CD Automatic adjustment Mode

| No. | Mode | Description |
|---|---|---|
| 1 | 061 | Sled in |
| 2 | 071 | Focus search |
| 3 | 062 | Sled out 5 |
| 4 | 051 | CD EF balance |
| 5 | 052 | CD EF gain |
| 6 | 051 | CD EF balance |
| 7 | 053 | CD ABCD gain |
| 8 | 054 | CD focus gain |
| 9 | 055 | CD tracking gain |
| 10 | 056 | CD RF offset |
| 11 | 057 | CD RF gain |
| 12 | 056 | CD RF offset |
| 13 | 058 | CD Focus bias |

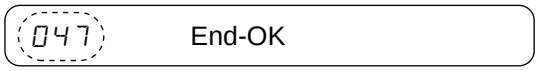
• In MO Automatic adjustment Mode

| No. | Mode | Description |
|---|---|---|
| 1 | 061 | Sled in |
| 2 | 071 | Focus search |
| 3 | 062 | Sled out |
| 4 | 031 | MO EF balance |
| 5 | 032 | MO EF gain |
| 6 | 031 | MO EF balance |
| 7 | 033 | MO ABCD gain |
| 8 | 034 | MO focus gain |
| 9 | 035 | MO tracking gain |
| 10 | 036 | MO RF gain |
| 11 | 037 | MO ADIP gain |
| 12 | 039 | MO focus bias A |
| 13 | 073 | ADER check |
| 14 | 071 | Focus search |
| 15 | 031 | MO EF balance |
| 16 | 032 | MO EF gain |
| 17 | 031 | MO EF balance |
| 18 | 033 | MO ABCD gain |
| 19 | 034 | MO focus gain |
| 20 | 035 | MO tracking gain |
| 21 | 036 | MO RF gain |
| 22 | 037 | MO ADIP gain |
| 23 | 039 | MO focus bias A |
| 24 | 073 | ADER check |
| 25 | 061 | Sled in |
| 26 | 071 | Focus search |
| 27 | 041 | Low reflection CD EF balance |
| 28 | 042 | Low reflection CD EF gain |
| 29 | 041 | Low reflection CD EF balance |
| 30 | 043 | Low reflection CD ABCD gain |
| 31 | 044 | Low reflection CD focus gain |
| 32 | 045 | Low reflection CD tracking gain |
| 33 | 046 | Low reflection CD RF offset |
| 34 | 047 | Low reflection CD RF gain |
| 35 | 061 | Sled in |
| 36 | 071 | Focus search |
| 37 | 041 | Low reflection CD EF balance |
| 38 | 042 | Low reflection CD EF gain |
| 39 | 041 | Low reflection CD EF balance |
| 40 | 043 | Low reflection CD ABCD gain |
| 41 | 044 | Low reflection CD focus gain |
| 42 | 045 | Low reflection CD tracking gain |
| 43 | 046 | Low reflection CD RF offset |
| 44 | 047 | Low reflection CD RF gain |

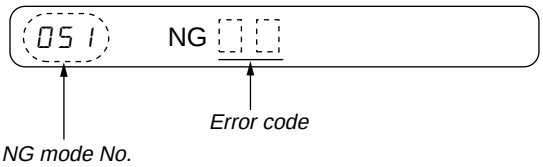
* Remote commander display during automatic adjustment




4. If result of automatic adjustment is OK, the following display appears.




5. If result of automatic adjustment is NG, the following display appears.

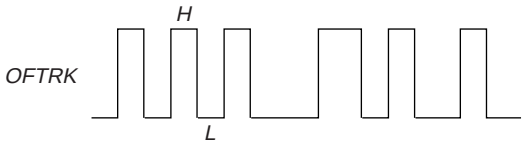



* If NG, enter servo mode to perform automatic adjustment of the item determined as NG.

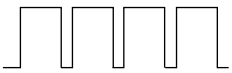
### Adjusting the OFF-track threshold

- Perform only for Ver. 1.000.
- Only for MO (use AU-1 disk).
- Use the following procedure.
- Monitor (adjust) with a storage oscilloscope.

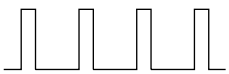
1. Set in Test mode (Manual mode).
2. Press the PLAYMODE key per 030.
   (2.6 volt operating mode ····· Two battery marks light up.)
3. Check that the OP is at the center (not the outermost or innermost circumference) and then play the AU-1 disk (031 ⟶ 032 ⟶ 033).
4. Press the PAUSE key at 033 and adjust the MO ABCD gain.
5. Press the STOP key (030), monitor the OFTRK (SP508) signal and set the focus ON at 031 with the PLAY key.




6. The adjustment is okay when the periods for "H" and "L" of the OFTRK is about equal.
7. Perform an overall adjustment without turning off the power.
8. Perform the following operation when the periods for "H" and "L" of the OFTRK are not equal.
   Press the DISPLAY key 6 times per "030" to set in Memory mode.
   [5C ø] is displayed. Press the remote control ■ key 6 times and use the ▶ key 9 times to align at [629].
   Shift the figure with the remote control ⊖, ⊕ keys per the "629" address and press PAUSE < set > (reset value "OA").
   (1) This figure is small when "H" is long.



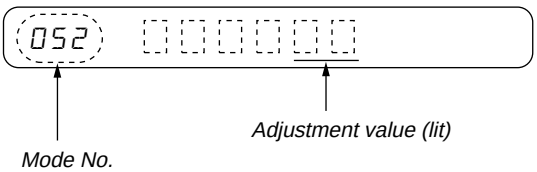

   (2) This figure is large when "L" is long.



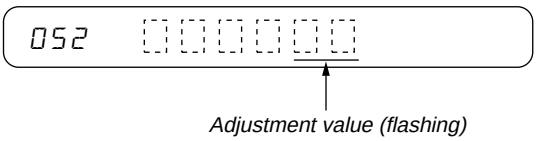

   Press the DISPLAY key one time to return to [030].
9. Return to 5. Press the PLAY key (remote control ▶ key) again to set to 031 (Focus ON).

### Adjustment in Servo Mode Method

1. When each adjustment mode is set according to the structure of servo mode, the lower two digits of the mode No. and the adjustment value written in EEPROM are displayed and lit on the LCD on the remote commander.

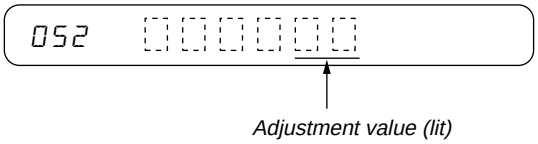



2. When the ❚❚ key is pressed, the following display appears and the automatic adjustment is performed.




**Note)** Although the VOLUME +/– keys can be used to change the adjustment value to any value, they should not be used whenever possible.

3. When the automatic adjustment is completed, the flashing adjustment value is lit.



# SECTION 6
# DIAGRAMS

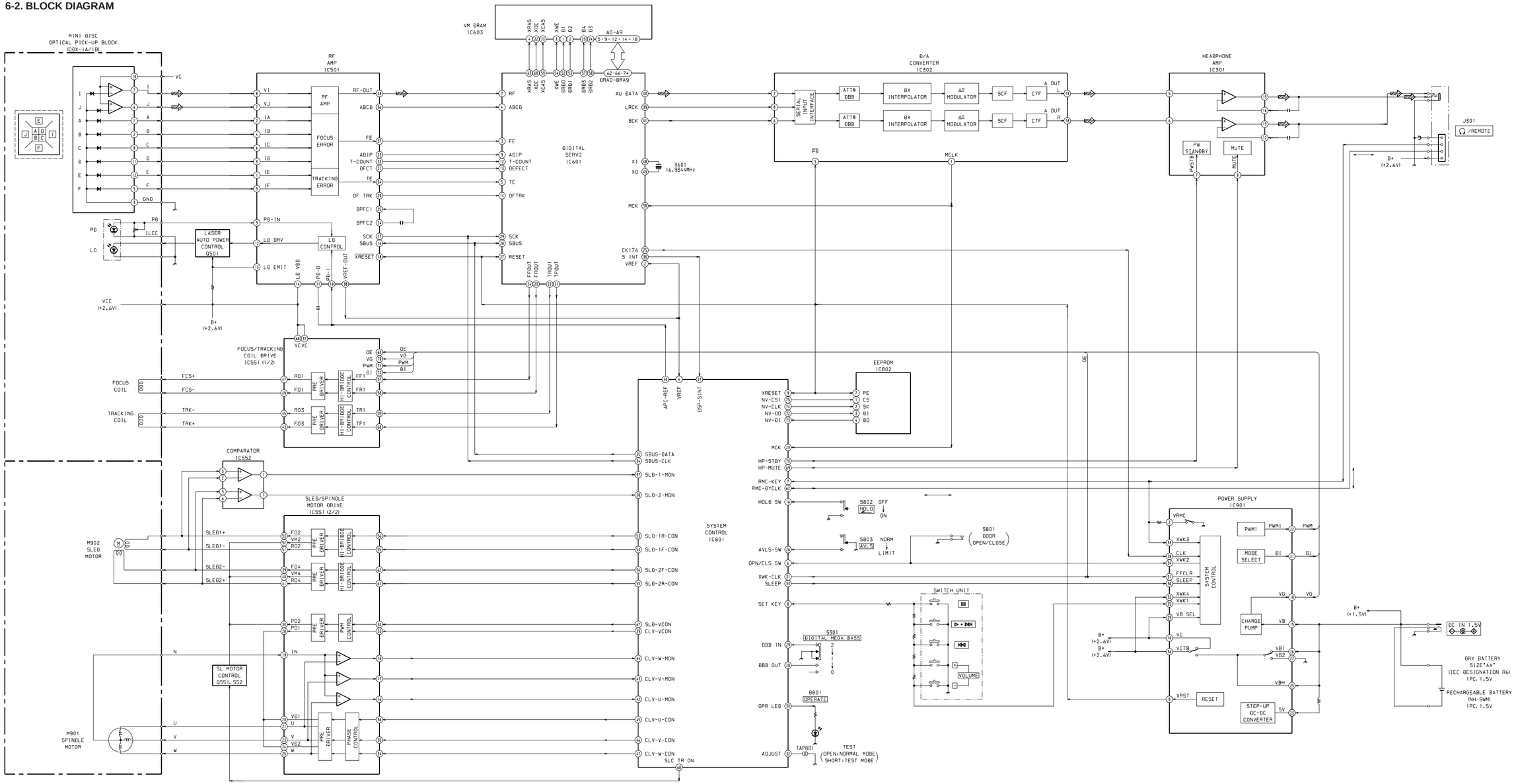
## 6-1. EXPLANATION OF IC TERMINALS

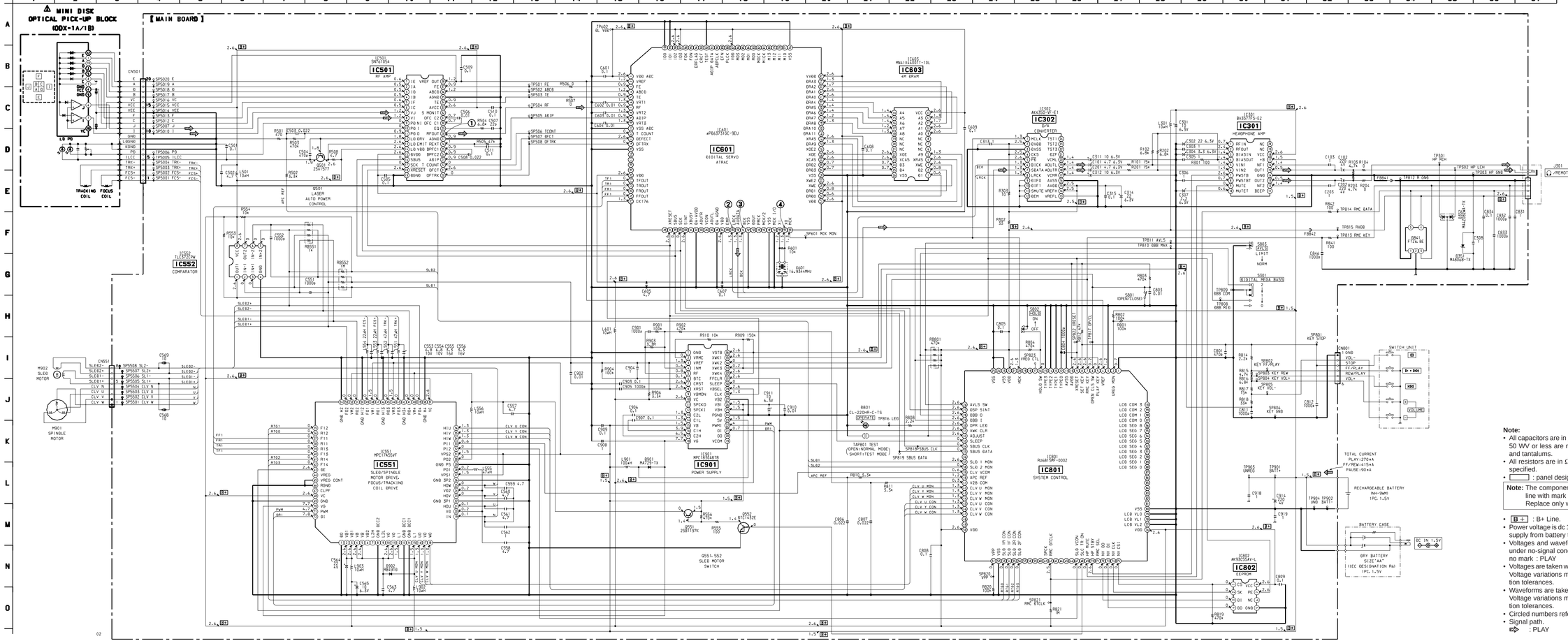
**IC801 RU6815MF-0002 (VERSION 1.000) (SYSTEM CONTROL)**
**IC801 RU6815MF-0003 (VERSION 2.000) (SYSTEM CONTROL)**

| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 1 | | – | Not used (Fixed at “L” ). |
| 2 | UREG MON | I | Unreg voltage monitor input. |
| 3 | | – | Not used (Fixed at “L” ). |
| 4 | VREF | I | Reference voltage for power supply voltage adjustlment. |
| 5 | PLAY KEY | I | Set PLAY key input. |
| 6 | OPEN/CLS SW | I | OPEN/CLOSE switch input. L : Close |
| 7 | RMC KEY | I | Remote commander key input. |
| 8 | SET KEY | I | Set key input. |
| 9 | XRESET | I | Systen reset input (At reset : “L” ). |
| 10 | AVDD | – | A/D converter power supply (+2.6V or +2.8V). |
| 11 | AVSS | – | A/D converter Ground. |
| 12 | TYPE 0 | I | Model discrimination terminal (Fixed at “L” ). |
| 13 | TYPE 1 | I | Model discrimination terminal (Fixed at “L” ). |
| 14 | TYPE 2 | I | Model discrimination terminal (Fixed at “L” ). |
| 15 | MODEL | I | Model discrimination terminal (Fixed at “L” ). |
| 16 | HOLD SW | I | Set HOLD switch input. |
| 17 | VREG CON | O | 2.5V voltage on/off switch (Sub terminal) (not used). |
| 18 | | – | Not used (Open). |
| 19 | | – | Not used (Open). |
| 20 | MCK | I | Master clock input. |
| 21 | | – | Not used (Open). |
| 22 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 23 | VSS | – | Digital Ground. |
| 24 | | – | Not used (Open). |
| 25 | VSS | – | Digital Ground. |
| 26 | AVLS SW | I | Set AVLS switch input. |
| 27 | DSP SINT | I | Interrupt input from DSP. |
| 28 | DBB 0 | I | DIGITAL MEGA BASS switch input (MID). |
| 29 | DBB 1 | O | DIGITAL MEGA BASS switch input (MAX). |
| 30 | OPR LED | O | LED drive output. |
| 31 | XWK CLR | O | Power IC wakeup factor latch clear output and motor driver IC control signal outpt. |
| 32 | ADJUST | I | “Normally, Test mode select input (“L” : Test mode) |
| 33 | SLEEP | O | Power supply circuit OFF signal output. |
| 34 | SBUS CLK | O | SBB serial clock output. |
| 35 | SBUS DATA | O | SBB serial data output. |
| 36 | | – | Not used (Open). |
| 37 | SLD 1 MON | I | Sled servo timing signal input. |
| 38 | SLD 2 MON | I | Sled servo timing signal input. |
| 39 | CLV VCON | O | Spindle servo drive voltage control output. |
| 40 | APC REF | O | Laser power control output. |
| 41 | V28-CON | O | Power voltage (+2.6V or +2.8V) correction control output. |
| 42 | CLV U MON | I | Spindle servo timing signal input. |
| 43 | CLV V MON | I | Spindle servo timing signal input. |
| 44 | CLV W MON | I | Spindle servo timing signal input. |
| 45 | CLV U CON | O | Spindle servo drive signal output. |
| 46 | CLV V CON | O | Spindle servo drive signal output. |
| 47 | CLV W CON | O | Spindle servo drive signal output. |

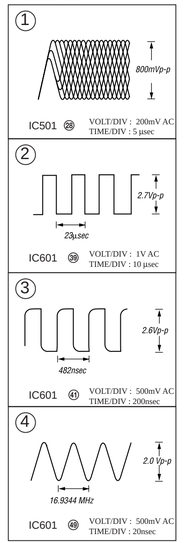
| Pin No. | Pin Name | I/O | Pin Description |
|---|---|---|---|
| 48 | | – | Not used (Open). |
| 49 | | – | Not used (Open). |
| 50 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 51 | VPP | – | Power for on board light. |
| 52 | VSS | – | Digital ground. |
| 53 | SLD 1R CON | O | Sled motor control signal output. |
| 54 | SLD 1F CON | O | Sled motor control signal output. |
| 55 | SLD 2R CON | O | Sled motor control signal output. |
| 56 | SLD 2F CON | O | Sled motor control signal output. |
| 57 | | – | Not used (Open). |
| 58 | | – | Not used (Open). |
| 59 | | – | Not used (Open). |
| 60 | | – | Not used (Open). |
| 61 | SPCK | O | Serial clock output for Remote control communication. Not used (Open). |
| 62 | RMC DTCLK | I/O | Serial data input/output for Remote control communication. |
| 63 – 66 | | – | Not used (Open). |
| 67 | SLD VCON | O | Sled servo outer voltage control output. |
| 68 | SLD PWR-UP | O | Baypass transistor control output for sled drive power supply. |
| 69 | HP MUTE | O | Headphone amplifier mute output. |
| 70 | HP STBY | O | Headphone amplifier standby output. |
| 71 | RMC SEL | O | TSB/SSB selection signal output to remote commander terminal. Not used (Open). |
| 72 | NV D0 | O | Serial data signal output for NVRAM. |
| 73 | NV D1 | I | Serial data signal input from NVRAM. |
| 74 | NV CLK | O | Serial clock signal output for NVRAM. |
| 75 | NV CS1 | O | Chip select signal output for NVRAM. |
| 76 | VDD | – | Digital power supply (+2.6V or +2.8V). |
| 77 – 79 | LCD VL2 – 0 | I | LCD drive level power supply (Connected ground). |
| 80 | VSS | – | Digital ground. |
| 81 – 87 | | – | Not used (Open). |
| 88 – 96 | LCD SEG0 – 8 | – | LCD Segment terminal. Not used (Open). |
| 97 – 100 | LCD COM0 – 3 | – | LCD common terminal. Not used (Open). |

## 6-2. BLOCK DIAGRAM






## • WAVEFORMS




**Note:**

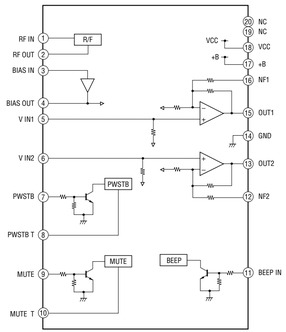
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- [ ] : panel designation.

**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

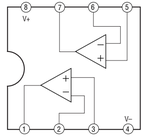
- B+ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : PLAY

## ● IC Block Diagrams

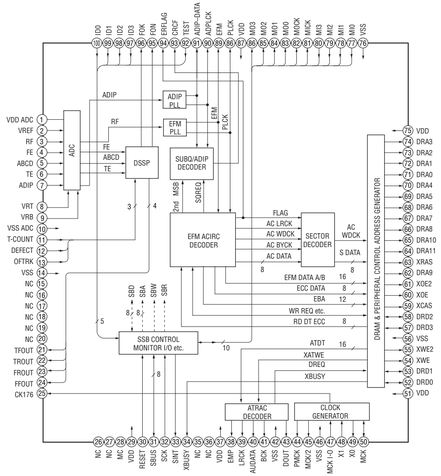
### IC301 BA3577FS-E2



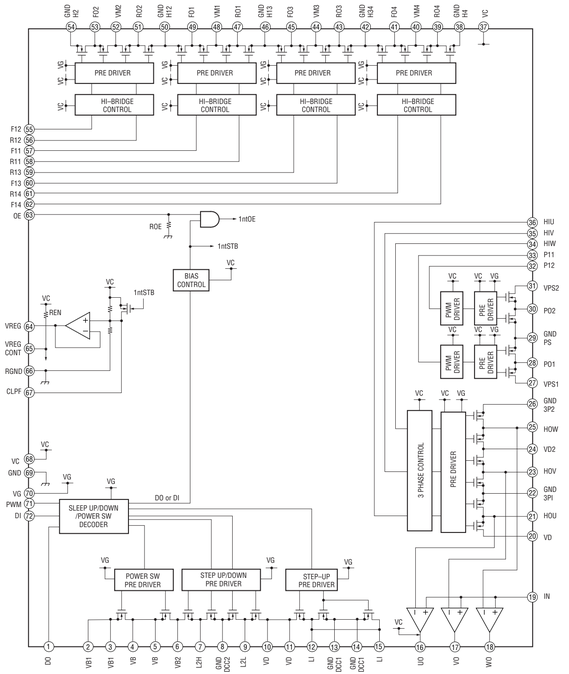

### IC552 TLC372CPWR



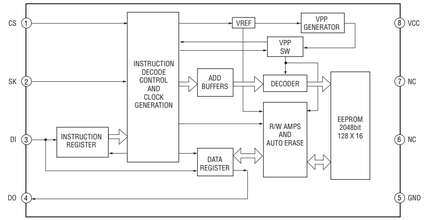

### IC601 µPD63731GC-9EU



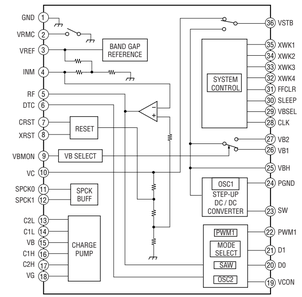

### IC551 MPC17A55FA




### IC802 AK93C55A/-L




### IC901 MPC1830ADTBEL



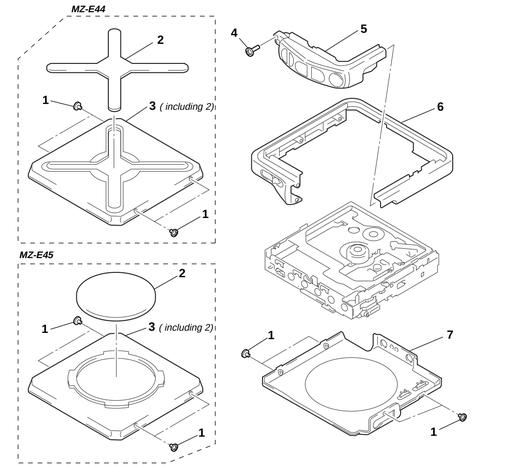

## SECTION 7
## EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ••• (RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.

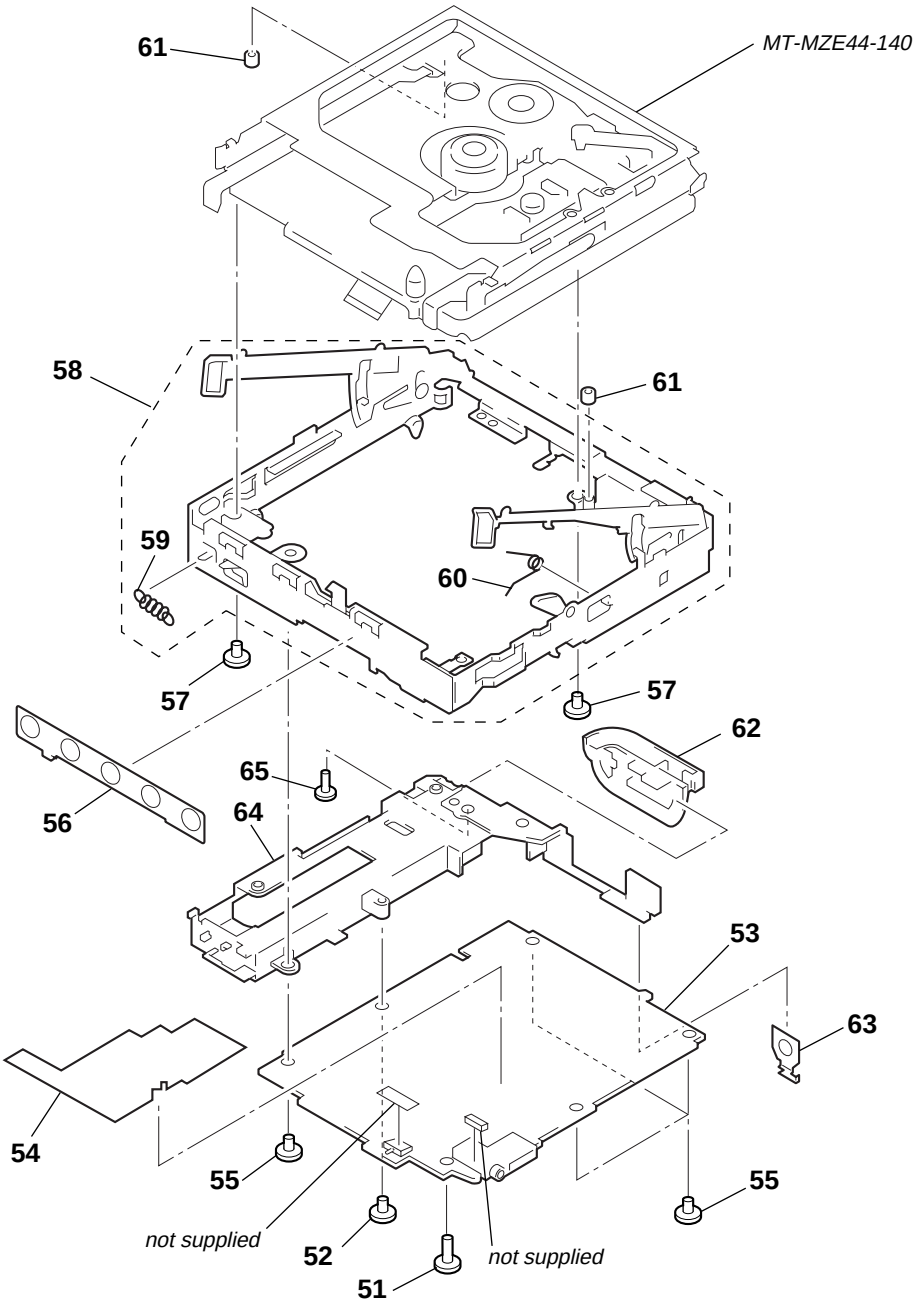
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

### 7-1. PANEL SECTION



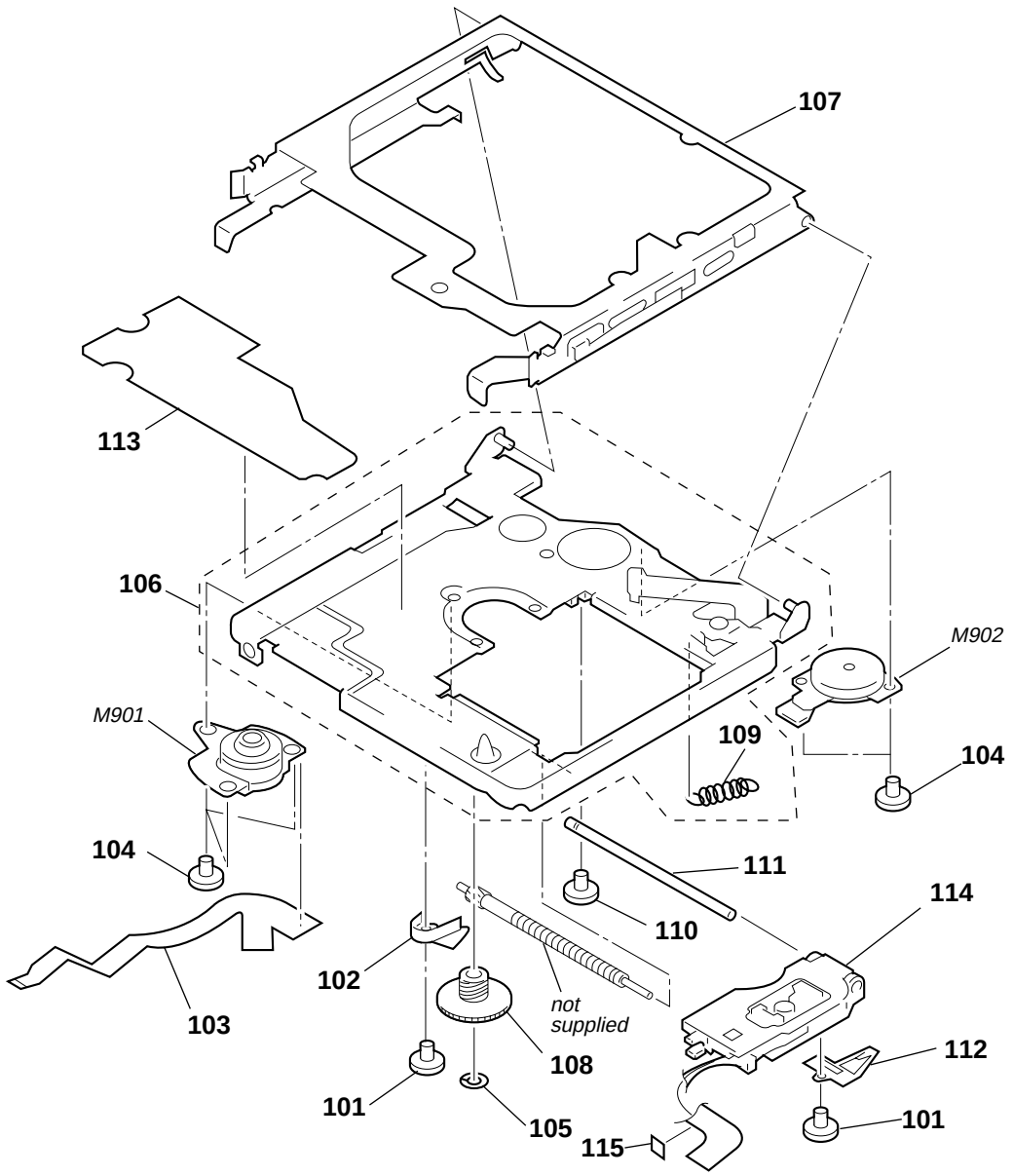

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 4-963-883-21 | SCREW (M1.4), PRECISION PAN (SILVER) (MZ-E44) | |
| 1 | 4-963-883-31 | SCREW (M1.4), PRECISION PAN (BLUE, ORANGE, GRAY) | |
| 2 | 4-211-898-01 | PLATE (X), ORNAMENTAL (SILVER) (MZ-E44) | |
| 2 | 4-211-898-11 | PLATE (X), ORNAMENTAL (BLUE) (MZ-E44) | |
| 2 | 4-211-912-01 | PLATE (ROUND), ORNAMENTAL (GRAY) (MZ-E45) | |
| 2 | 4-211-912-11 | PLATE (ROUND), ORNAMENTAL (ORANGE) (MZ-E45) | |
| 3 | X-4950-233-1 | PANEL ASSY, UPPER (SILVER) (MZ-E44) | |
| 3 | X-4950-238-1 | PANEL ASSY, UPPER (BLUE) (MZ-E44) | |
| 3 | X-4950-242-1 | PANEL ASSY, UPPER (ORANGE) (MZ-E45) | |
| 4 | 4-963-883-81 | SCREW (M1.4), PRECISION PAN | |
| 5 | X-4950-237-1 | PANEL ASSY, FRONT | |
| 6 | X-4950-236-1 | BELT ASSY | |
| 7 | X-4950-235-1 | PANEL ASSY, BOTTOM (SILVER) (MZ-E44) | |
| 7 | X-4950-239-1 | PANEL ASSY, BOTTOM (BLUE) (MZ-E44) | |
| 7 | X-4950-240-1 | PANEL ASSY, BOTTOM (GRAY) (MZ-E45) | |
| 7 | X-4950-241-1 | PANEL ASSY, BOTTOM (ORANGE) (MZ-E45) | |

## 7-2. MAIN SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 3-703-502-11 | SCREW | |
| 52 | 4-984-017-01 | SCREW (1.7), TAPPING | |
| 53 | A-3293-984-A | MAIN BOARD, COMPLETE | |
| 54 | 4-211-392-01 | PLATE, BLIND | |
| 55 | 3-335-797-91 | SCREW (M1.4), TOOTHED LOCK | |
| 56 | 1-475-804-11 | SWITCH UNIT | |
| 57 | 4-211-119-01 | SCREW, STEP | |
| 58 | X-4950-229-1 | CHASSIS ASSY (MAIN SECTION) | |
| 59 | 4-989-078-01 | SPRING (OPEN), TENSION | |
| 60 | 4-995-274-01 | SPRING (O-C), TORSION | |
| 61 | 4-982-418-01 | DAMPER | |
| 62 | 4-211-118-01 | LID, BATTERY CASE | |
| 63 | 4-212-087-01 | TERMINAL | |
| 64 | X-4950-232-1 | CASE ASSY, BATTERY | |
| 65 | 4-963-883-41 | SCREW (M1.4), PRECISION PAN | |

## 7-3. MECHANISM DECK SECTION (MT-MZE44-140)




The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 101 | 4-963-883-61 | SCREW (M1.4), PRECISION PAN | |
| 102 | 4-982-563-01 | SPRING, THRUST | |
| 103 | 1-666-784-13 | FLEXIBLE (CLV) BOARD | |
| 104 | 4-963-883-21 | SCREW (M1.4), PRECISION PAN | |
| 105 | 4-965-893-01 | WASHER, GEAR (A) STOPPER | |
| 106 | X-4950-157-1 | CHASSIS ASSY (MD SECTION) | |
| 107 | X-4948-010-1 | HOLDER ASSY | |
| 108 | 4-982-555-01 | GEAR (A) | |
| 109 | 4-210-659-01 | SPRING, TENSION | |
| 110 | 3-349-825-82 | SCREW, PRECISION | |
| 111 | 4-993-251-01 | SHAFT, MAIN | |
| 112 | 4-982-561-11 | SPRING, RACK | |
| 113 | 4-995-532-02 | COVER, MD | |
| ⚠114 | X-4949-164-1 | OPTICAL PICK-UP BLOCK ASSY | |
| 115 | 4-988-858-01 | SHEET (SW) | |
| M901 | 1-698-991-11 | MOTOR, DC (including PULLEY) (SPINDLE) | |
| M902 | 1-698-764-21 | MOTOR, SLED (including PULLEY) (SLED) | |

# SECTION 8
# ELECTRICAL PARTS LIST

**MAIN**

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ , for example :
  uA.... : µ A.... , uPA.... : µ PA....
  uPB.... : µ PB.... , uPC.... : µ PC....
  uPD.... : µ PD....
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  HK : Hong Kong
  JE : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | A-3293-984-A | MAIN BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C102 | 1-125-899-11 | TANTAL. CHIP | 220uF | 20% | 4V |
| C103 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C201 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C202 | 1-125-899-11 | TANTAL. CHIP | 220uF | 20% | 4V |
| C203 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C301 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C302 | 1-119-750-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C303 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C304 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 6.3V |
| C305 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C306 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C307 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C308 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C311 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C312 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C313 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C314 | 1-119-750-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C315 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C501 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C502 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C503 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C504 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C505 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C506 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C507 | 1-162-919-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C508 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C509 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C510 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C511 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C551 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C552 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C553 | 1-104-850-11 | TANTAL. CHIP | 6.8uF | 20% | 10V |
| C554 | 1-104-850-11 | TANTAL. CHIP | 6.8uF | 20% | 10V |
| C555 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 16V |
| C556 | 1-104-912-11 | TANTAL. CHIP | 3.3uF | 20% | 16V |
| C557 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C558 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C559 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C560 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C561 | 1-115-566-11 | CERAMIC CHIP | 4.7uF | 10% | 10V |
| C562 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C563 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C564 | 1-117-232-11 | TANTALUM | 22uF | 20% | 4V |
| C565 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C568 | 1-117-370-11 | CERAMIC CHIP | 10uF | | 10V |
| C569 | 1-117-370-11 | CERAMIC CHIP | 10uF | | 10V |
| C601 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C602 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C603 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C604 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C605 | 1-117-720-11 | CERAMIC CHIP | 4.7uF | | 10V |
| C607 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C608 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C609 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C801 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C803 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C804 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C805 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C806 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C807 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C808 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C809 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C811 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C812 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C831 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C832 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C833 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C834 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C846 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C901 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C902 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C903 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C904 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C905 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C906 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C907 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C908 | 1-109-982-11 | CERAMIC CHIP | 1uF | 10% | 10V |
| C909 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V |
| C910 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |

## MAIN

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C911 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C914 | 1-126-246-11 | ELECT CHIP | 220uF | 20% | 4V |
| C918 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| C919 | 1-115-156-11 | CERAMIC CHIP | 1uF | | 10V |
| | | < CONNECTOR > | | | |
| CN501 | 1-573-360-21 | CONNECTOR, FFC/FPC 20P | | | |
| CN551 | 1-784-226-21 | CONNECTOR, FFC/FPC 8P | | | |
| CN801 | 1-778-154-21 | CONNECTOR, FFC/FPC 6P | | | |
| | | < DIODE > | | | |
| D351 | 8-719-017-58 | DIODE MA8068 | | | |
| D352 | 8-719-045-87 | DIODE MA4Z082WA-TX | | | |
| D801 | 8-719-052-72 | LED CL-220HR-C (OPERATE) | | | |
| D841 | 8-719-066-17 | DIODE FTZ6.8E-T148 | | | |
| D901 | 8-719-420-51 | DIODE MA729 | | | |
| D902 | 8-719-066-16 | DIODE RB491D-T146 | | | |
| | | < FERRITE BEAD > | | | |
| FB841 | 1-414-228-11 | INDUCTOR CHIP | | | |
| FB842 | 1-414-228-11 | INDUCTOR CHIP | | | |
| | | < IC > | | | |
| IC301 | 8-759-431-56 | IC BA3577FS-E2 | | | |
| IC302 | 8-759-541-32 | IC AK4350-VF-E1 | | | |
| IC501 | 8-759-538-56 | IC SN761054 | | | |
| IC551 | 8-759-390-25 | IC MPC17A55FTA | | | |
| IC552 | 8-759-358-40 | IC TLC372CPWR | | | |
| IC601 | 8-759-538-55 | IC uPD63731GC-9EU | | | |
| IC603 | 8-759-527-01 | IC MN41X4400TT-10L | | | |
| IC801 | 8-759-538-58 | IC RU6815MF-0002 (VERSION 1.000) | | | |
| IC801 | 8-759-560-39 | IC RU6815MF-0003 (VERSION 2.000) | | | |
| IC802 | 8-759-449-23 | IC AK93C55AV-L | | | |
| IC901 | 8-759-538-57 | IC MPC1830ADTBEL | | | |
| | | < JACK > | | | |
| J301 | 1-778-179-11 | JACK (🎧 /REMOTE) | | | |
| | | < COIL > | | | |
| L301 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L501 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L551 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L552 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L553 | 1-414-400-11 | INDUCTOR | 22uH | | |
| L554 | 1-414-400-11 | INDUCTOR | 22uH | | |
| L555 | 1-412-031-11 | INDUCTOR CHIP | 47uH | | |
| L556 | 1-414-410-21 | INDUCTOR | 10uH | | |
| L601 | 1-414-754-11 | INDUCTOR | 10uH | | |
| L901 | 1-412-032-11 | INDUCTOR CHIP | 100uH | | |
| L902 | 1-416-740-11 | INDUCTOR | | | |
| L903 | 1-414-410-21 | INDUCTOR | 10uH | | |
| | | < TRANSISTOR > | | | |
| Q501 | 8-729-922-10 | TRANSISTOR 2SA1577-QR | | | |
| Q551 | 8-729-904-87 | TRANSISTOR 2SB1197K-R | | | |
| Q552 | 8-729-929-11 | TRANSISTOR DTC143ZE-TL | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < RESISTOR > | | | |
| R101 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R102 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R103 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R104 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R201 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R202 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R203 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R204 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R301 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R302 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/16W |
| R303 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/16W |
| R501 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R502 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R503 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R504 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R505 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R506 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R507 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R508 | 1-216-793-11 | RES,CHIP | 4.7 | 5% | 1/16W |
| R553 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R554 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R555 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R556 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R601 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R801 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R802 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R803 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R804 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R808 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R810 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R811 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R812 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R814 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R815 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R816 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R817 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R818 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R819 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R820 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R821 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R841 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R842 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R901 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R902 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R903 | 1-216-863-11 | RES,CHIP | 3.3M | 5% | 1/16W |
| R904 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R906 | 1-216-827-11 | METAL CHIP | 3.3k | 5% | 1/16W |
| R909 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/16W |
| R910 | 1-218-871-11 | RES,CHIP | 10K | 0.50% | 1/16W |
| | | < COMPOSITION CIRCUIT BLOCK > | | | |
| RB551 | 1-233-961-11 | RES, NETWORK (CHIP TYPE) | 1K | | |
| RB552 | 1-233-979-11 | RES, NETWORK (CHIP TYPE) | 1M | | |
| RB801 | 1-233-977-11 | RES, NETWORK (CHIP TYPE) | 470K | | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < SWITCH > | |
| S301 | 1-762-079-11 | SWITCH, SLIDE (DIGITAL MEGABASS) | |
| S801 | 1-572-688-11 | SWITCH, PUSH (1 KEY) (OPEN/CLOSE) | |
| S802 | 1-762-078-11 | SWITCH, SLIDE (HOLD ➞) | |
| S803 | 1-762-078-11 | SWITCH, SLIDE (AVLS) | |
| | | < VIBRATOR > | |
| X601 | 1-767-621-11 | VIBRATOR, CERAMIC (16.9344MHz) | |
| ********** | | | |
| | | MISCELLANEOUS | |
| | | ********** | |
| 56 | 1-475-804-11 | SWITCH UNIT | |
| 103 | 1-666-784-13 | FLEXIBLE (CLV) BOARD | |
| ⚠114 | X-4949-164-1 | OPTICAL PICK-UP BLOCK ASSY | |
| M901 | 1-698-991-11 | MOTOR, DC (SPINDLE) | |
| M902 | 1-698-764-21 | MOTOR, SLED (SLED) | |
| ********** | | | |
| | | ACCESSORIES & PACKING MATERIALS | |
| | | ********** | |
| | 1-475-831-11 | REMOTE CONTROL UNIT | |
| ⚠ | 1-528-580-21 | BATTERY CHARGER (BC-7HT) (JE) | |
| | 1-528-743-11 | BATTERY, NICKEL HYDROGEN | |
| ⚠ | 1-528-866-11 | BATTERY CHARGER (BC-9HP2) (HK) | |
| ⚠ | 1-569-007-11 | ADAPTOR, CONVERSION 2P (JE) | |
| | 1-759-628-11 | CASE, BATTERY | |
| | 3-008-521-01 | CASE, BATTERY CHARGE | |
| | 3-864-524-11 | MANUAL, INSTRUCTION (SPANISH, CHINESE) | |
| | 3-864-524-21 | MANUAL, INSTRUCTION (ENGLISH, FRENCH) | |
| | 3-864-524-61 | MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JE) | |
| | 4-212-536-01 | STRAP, HAND | |
| | 4-972-888-01 | CASE, CARRYING | |
| | 8-953-218-90 | HEADPHONE MDR-E838SP//K SET | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-924-929-11

**Sony Corporation**
**Personal A&V Products Company**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